amateur radio

JOURNAL OF THE WIRELESS INSTITUTE OF AUSTRALIA

VOL. 49, No. 6 JUNE 1981

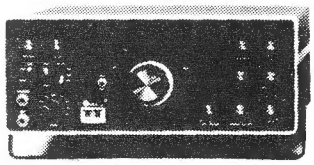
FEATURED IN THIS ISSUE:

- ★ A MORE COMPLETE ANTENNA TEST — BELIEFS AND FACTS
- ★ CROWBARS AND SCRs
- ★ VK2TTY NEWS
- ★ OPERATION WHITESTICK

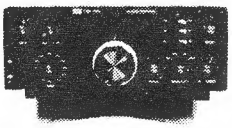
Registered for posting as a Publication — Category B

SCALAR

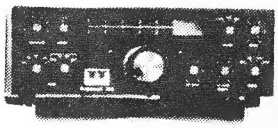
QUALITY PRODUCTS FOR RADIO AMATEURS



TEN-TEC OMNI-C
9 - Band
200 watt P.E.P. input
SSB/CW transceiver

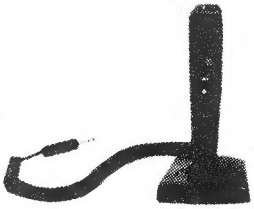


TEN-TEC 580-DELTA
9 - Band
200 watt P.E.P. input
SSB/CW transceiver

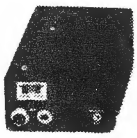


TEN-TEC ARGONAUT-515
5 - Band
5 watt P.E.P. QRP
SSB/CW transceiver

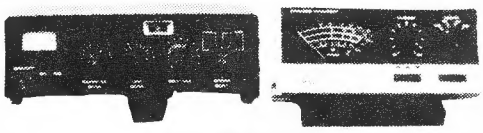
DL-1000
1 kw oil filled
Dummy load



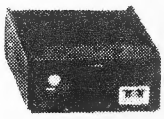
215 PC
High impedance
Ceramic microphone



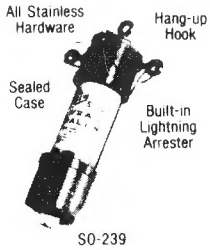
TEN-TEC 234
Speech Processor
Unique Passband Control



TEN-TEC 228
Transmatch with SWR meter. Use with coax. balanced line or long wires. 3 position antenna switch.

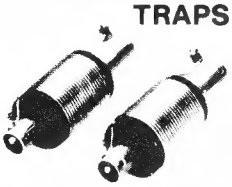


WELZ SP-300
SWR/Power Meter
1.8 to 500 MHz
Power Scales 20, 200 and 1 kw.



W2AU
1:1, or 4:1
Wire
Dipole Baluns
3-40 MHz
1 KW DC

REYCO ANTENNA TRAPS



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10 MHz BAND EXPECTED TO BE AVAILABLE FROM JANUARY 1, 1982 — ROSS RAMSAY AT 1981 WIA FEDERAL CONVENTION.

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Cover Photo

Mr. Ross Ramsay, First Assistant Secretary of the Department of Communications, officially hands the Remembrance Day Contest trophy to Jenny Warrington VK5ANW, representing the VK5 Division which won the trophy in 1980. The ceremony took place at the WIA Federal Convention dinner in Melbourne in May. David Wardlaw VK3ADW, Immediate Past President, looks on.

WIANEWS

Australia-Wide Amateur Radio Issues Discussed

The Annual General Meeting (the Federal Convention) of the WIA is the main forum where Divisional Representatives (the Federal Councillors) meet to discuss and formulate policies on current amateur radio subjects which are of interest to all amateurs throughout Australia.

The 1981 Federal Convention (the 45th such Annual Convention) in Melbourne on 2nd, 3rd and 4th May did exactly this. A more detailed report will follow in next month's AR but some items will be of general interest.

The proposed Australian Table of Frequency Allocations update elicited the fact that the omission of the footnote relating to the temporary use of the 576-585 MHz band had occurred through an oversight. The use of 50-52 MHz (or, at least, 50-50.15 MHz) continues to pose problems for the central office planners. This was reported in March AR, page 7. A WIA band plan for FM on 6 metres was formulated.

In debate it was agreed that pressure be continued for the use of the segment 3.7 to 3.9 MHz of the 80m band. The policy of exerting pressure for the very early allocation of the 10 MHz band (secondary user) as well as the 18 and 24 MHz bands was endorsed and must be maintained. The need was foreseen to get as many amateurs as possible to operate on these bands when they are released for amateur use. In relation to the narrow 10 MHz band (10.1-10.15 MHz) it was resolved to apply a gentleman's agreement to limit this band to AOCP holders. It should be split CW/Phone (SSB) similarly to the 14 MHz band, i.e. 15 kHz CW only and the remainder (35 kHz) for Phone and CW, with a power limitation to be resolved internationally through the IARU R3 Association. Contests and awards being banned appeared sensible but is a wider issue.

On 10 metres it was agreed to represent to the International Beacon Project Co-ordinator that the upper and lower limits of the beacon segment be limited to 28.3 MHz and 28.2 MHz respectively. It was also agreed to ask for an Australian beacon segment of 28.26 to 28.272 MHz inclusive.

The Institute does not support any extensions of privileges to NAOCP and LAOCP operators upon obtaining a combination K suffix or equivalent. Equally there was no support to extend Novice privileges as no compelling evidence for this has come forward.

In addition to the WICEN net frequencies on various bands, it was agreed that 21190 and 28450 kHz should be reserved for all properly identified WICEN communications purposes when so required.

We now have AMSAT AUSTRALIA replacing Project Australia and a WIA $US500 donations to AMSAT to help towards the replacement of Ph. III satellite lost last year. More publicity should be given that WICEN is an Amateur Radio Service commitment. A Federal Technical Advisory Committee (FETAC) is to be set up to absorb the existing VHFAC, repeater and other technical committees. The 1981 WIA Call Book is to be an updated and expanded version of the 1979 Call Book and to include such extras as Club Awards. No change for slow morse frequency on 80m. Budget for 1982 was prepared envisaging a small inflation-ratio increase in the Federal element of subscriptions which must be supplemented by increased new membership recruiting drives. The Institute supports the concept of affiliation to the Federal WIA of nationwide societies and the Executive was directed to re-draft the proposals on how this is to be achieved. More next month.

The Institute sent a letter to the Minister during April expressing concern about harmful interference in the amateur bands and reporting procedures.

WIANEWS SPECIAL

Mr. Ross Ramsay addresses Federal Delegates

INTRUDER WATCHERS PLEASE GET BUSY

(see May AR).

During the 1981 Federal Convention Mr. Ross Ramsay, First Assistant Secretary of the Department of Communications responsible for the Radio Frequency Management Division, attended as a guest and spoke as well as answering questions on many matters of amateur interest, including this:—

"Now the Russian Woodpecker has been around for a few years. Perhaps he's getting bigger and stronger as he grows up and pecking more loudly because we've been hearing a lot more from him lately. We've been listening hard at our monitoring stations and in fact we've heard him pecking away on 27.880 MHz. We don't like this very much as that is the safety frequency for harbour mobiles and we are going to send off a message to our Russion friends.

However at this stage we are not aware of any unfortunate mariner who's met his doom through the Woodpecker's activities. Incidentally, the Russians do have an assignment through the IFRB on this particular frequency.

Now we've not complained to them about the other parts of the band at this stage because what we need is really more solid information about what degree it's really upsetting people in Australia. That means we need far harder and more detailed information. Certainly there is a campaign going on against the Woodpecker but we need these statistics as to date time frequency problems caused so that we can go to the Russians with something really solid. You don't make international complaints lightly in RFM or in any other field. I am not suggesting the matter is trivial but what I am suggesting is that you don't complain to your neighbour unless he's really making a nuisance of himself. So we would be very pleased to have more hard information from you."

Amongst many other things and in relation to the proposed new Radio Telecommunications Act. Mr. Ramsay emphasised that licence and other fees from spectrum users would be expected to cover the cost of the Department. This might have minimal effects however because both Crown and Statutory bodies would thenceforward become subject to licensing but inflation must be allowed for dispite increased efficiency and the application of improved legislation. He did think however that examination fees would rise.

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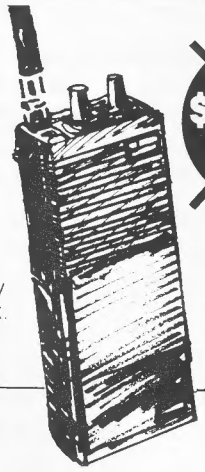

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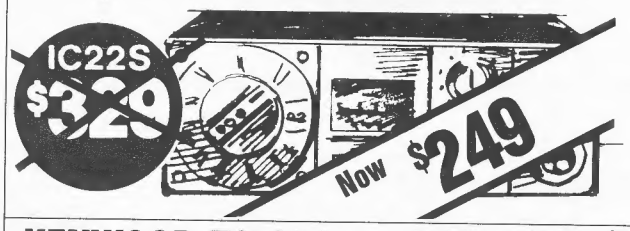

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All mode 10 watt, 2m Mobile. Dual VFO, Digital PLL.
R.R.P. $712 – Now $469

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IC–251A –
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R.R.P. $939 – Now $719

IC-22U –
5kHz Step tunable and removable 2m transceiver.
R.R.P. $385 – Now $269

IC–215
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TS130S

SP180 down to $50.60

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VFO–520S reduced to $136.62 was ($180)
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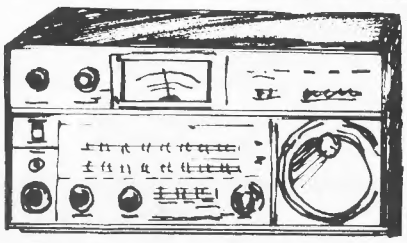

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Has been reduced to $999 – it was $1569 R.R.P.

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300 Watt Antenna Tuner

MFJ 941C Versa Tuner II

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CONTACT US FOR COMPETITIVE YAESU PRICES

MODEL	DESCRIPTION	R.RETAIL
MFJ ANTENNA TUNERS		
MFJ-984	3KW Ant. coupler/Dual meter type SWR/power. meter/Co-Ax switch, for bal and un bal line (Inc. Balun).	449.00
MFJ-982	3KW Ant. coupler/SWR/power meter for bal and un bal line (Inc. Balun).	309.00
MFJ-962	1.5KW Ant. coupler/SWR/power meter 6 pos. Co-Ax SW for bal and un bal line (Inc. Balun).	255.00
MFJ-961	1.5KW Ant. coupler/6 pos. Co-Ax SW for bal and un bal line (Inc. Balun).	229.00
MFJ-949	300W Ant. coupler/SWR/Power meter Dummy load/Co-Ax SW for bal and un bal line (Inc. Balun).	
MFJ-941B	300W Ant. coupler/SWR/Power Meter Co-Ax SW. for bal and un bal line (Inc. Balun).	159.00
MFJ-943	300W Ant. coupler for bal and un bal line (Inc. Balun).	129.00
MFJ-901	200W Ant. coupler for bal and un bal line (Inc. Balun).	109.00
MFJ-900	200W Ant. coupler for un bal line (no Balun).	99.00
OTHER MFJ PRODUCTS		
SSB/CW FILTERS		
MFJ-752	**Dual turnable active SSB**/CW filter Inc. Peak/Notch, noise limiters and two variable freq. filters.	165.00
MFJ-751	Tunable active SSB/CW filter.	129.00
KEYERS		
MFJ-484	Grandmaster Keyer, 400 character memory plus many more features.	249.00
MFJ-408	Electronic Keyer with speed meter.	165.00
MFJ-481	Memory Keyer, stores 2 x 50 character messages 8-50WPM.	165.00
MFJ-402	Econo Keyer, built in paddle, weight and speed control 8-50 WPM solid state keying.	95.00
MISCELLANEOUS		
MFJ-410	Morse Processer, morse code tutor sends unlimited random code in random groups.	
MFJ-1020	Active indoor antenna for rcvrs.	139.00
MFJ-250	2KW Oil cooled Dummy load.	
MFJ-959	Ant. coupler with 20dB Rx Preamp.	149.00
LSP-520 x11	Super Logarithmic speech processor 30dB dynamic range & 3 active filters.	99.00
MFJ-202	Antenna Noise Bridge, wide range 0-250 OHMS ± 150pF X 1-100MHz.	99.00
MFJ-HK-1	Morse Code Manipulator.	59.00
DENTRON PRODUCTS		
DTR-2000L	2KW Linear Amplifier, uses1 x 8877	1570.00
MLA-2500B	2KW Linear Amplifier, uses 8875's.	1470.00
Clipperton-L	2KW Linear Amplifier, uses 4 x 572B's. (new model)	889.00
GLA-1000B	1KW Linear Amplifier uses 4 x 6LQ6	470.00
Clipperton	1KW 2mx Linear Amplifier.	589.00
DTR-1200LF	1KW Linear Amplifier.	785.00
DTR-3KA	1KW Antenna Tuner.	470.00
RT-3000	1KW Antenna Tuner.	354.00
AT-3K	3KW Antenna Tuner.	299.00
AT-1K	1KW Antenna Tuner.	178.00
JR Monitor	300W Antenna Tuner.	89.00
Big Dummy	2KW PEP Oil Cooled Load.	46.00
T-100	0-500MHz 100 Watt Load.	48.00
T-200	0-500MHz 200 Watt Load.	68.00
MIRAGE AMPLIFIERS		
B-1016	2Mx Linear 160 Watts.	389.00
B-108	2Mx Linear 80 Watts.	259.00

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Scan-X	Discone Antenna, 65-520MHz for VHF/UHF receivers.	45.00
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R-CC	Carrying case for R-517.	8.00
X-SA	Crystals — Standard for R-517.	8.00
X-OA	Crystals — Special to order for R-517.	20.00
PS-30	AC Adapter for R-517.	10.00
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Scan-X	65-520MHz Discone 3dB gain for receivers only.	45.00
GDX-1	80-480MHz Discone for Tx and Rx use.	75.00
Gingo	144-170MHz gain vertical,adjustable.	54.00
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G-80	80Mx Heavy duty helical 7ft long.	39.00
G-40 to G-10	40-10Mx H.D. Helicals 6ft long.	34.00
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G-BM	Bumper Mount for A.S.E. Helicals.	18.50
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HF5-DX	80-10MX Trapped vertical, no guys Self supporting with self supporting radials.	149.00
GSS	Deluxe Gutter Mount, will take most antenna bases.	10.00
F-1E	Rubber Duck Helical for 146-170MHz with PL-259 base.	10.00
TOWERS		
G20/1	6m Single section self supporting.	105.00
G20/2	6m Double section self supporting.	115.00
GM20	6m Tubular 2" mast.	34.00
G20/B	6m Heavy Duty Box Base for G-20/1/2.	199.00
G10/B	3m Heavy Duty Box Base for G20/1/2.	179.00
GM-154	5m Tubular 1½" mast.	25.00
CABLES		
RG-58/AU	Standard 5.6dB/100ft a 100MHz loss.	0.60/m
5d-FB	Low loss 2dB/100 ft a 100MHz.	1.45/m
G-R7	High Quality 7 core Rotator cable.	1.30/m
8d-FB	Low loss FOAM-DOUBLE SHEILDED 1.6dB/100ft a 100MHz.	2.00/m
PUBLICATIONS		
Kit of Maps	Incl. World Map. US Map & Atlas with call prefixes and zones.	6.00
Great Circle Map	Centred on Melbourne.	1.00
US Callbook	United States Call Listing.	20.00
Foreign Callbook	Call Listing of the World.	19.00

MODEL	DESCRIPTION	R.RETAIL
ANTENNAS		
SWISS QUAD SERIES BY T.E.T.		
SQ-20M	20Mx 10dBd gain. (Elements loaded)	389.00
SQ-15	15Mx 12dBd gain. Swiss quad.	179.00
SQ-10	10Mx 12dBd gain. Swiss quad.	169.00
SQ-61	6Mx 12dBd gain. Swiss quad.	129.00
SQ-22	2Mx x 2, 15dBd gain. Swiss quad.	109.00
SQ-22D x	2Mx x 4, 17dBd gain. Swiss quad.	199.00
SQ-24	2Mx x 4, 18dBd gain. Swiss quad.	229.00
SQ-007	70cm x 2, 15dBd gain. Swiss quad.	109.00
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28-30-3	10/11MX 3el Yagi 8dBd gain.	85.00
28-30-5	10/11MX 5el Yagi 9.5dBd gain.	145.00
28-30-6	10/11MX 6el Yagi 10dBd gain.	189.00
51-53-5	6MX 5el Yagi 9.7dBd gain.	90.00
51-53-8	6MX 6el Yagi 12dBd gain.	140.00
51-53-11	6MX 11el Yagi 14dBi gain.	60.00
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144-148-11	2MX 11el Yagi 14.5dBi gain.	60.00
144-148-16	2MX 16el Yagi 14.8dBd gain.	80.00
420-470-6	0.7MX 6el Yagi 8dBd gain.	40.00
420-470-14	0.7MX 14el Yagi 13.7dBi gain.	55.00
432-16LB	0.7MX 16el Yagi 14.8dBd gain.	80.00
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DUE TO A DRAFTING ERROR, A POTENTIAL HAZARD EXISTS IN FIGS. 1, 2 AND 3 ON PAGE 42 OF THE MAY EDITION OF AMATEUR RADIO.

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A More Complete Antenna Test — Beliefs and Facts

H. F. Ruckert VK2AOU
25 Berrille Road, Beverly Hills 3209

There was a time when we radio amateurs put up a new antenna, and if we worked a few countries within two weeks, we considered the new antenna as being good. These days antennas have become more complicated and more costly. Regardless of whether we build it ourselves or if we purchase one of the many manufactured types, we like to compare the gain, F/B ratio and SWR of antennas before we start with the construction or purchase.

TEST FIGURES

One problem shows up if we look for an honest consumer test report on antennas. We consult "QST" and find that the antennas advertisements don't list the gain figure. The ARRL explains that they found such wild performance claims by some manufacturers that the gain figure had to be omitted until all manufacturers measure according to international standard method. W6SAI writes in his Beam Antenna Handbook (5th edition, page 31): "Extreme caution should be exercised in accepting such claims, especially if the performance characteristics of the antenna in question seem to have been generated in the advertising department rather than the engineering department of the manufacturer!" Forward gain figures which do not state the following conditions of the test are useless and misleading:

1. Was the reference antenna and isotropic radiator (theoretical value) or a dipole? dBi or dBd respectively should indicate this, not dB.
2. Height above ground of both antennas: The test antenna has to be in such a position (considering the ground conditions) that it stands in a uniformly supplied field of the transmitting antenna and is hit by the lowest main lobe of the radiation to receive the maximum signal.
3. Was the gain figure found at the frequency which gave (for the tested antenna) the best result, and was the receiving test antenna sufficiently broadbanded not to affect the result?
4. How far did the measurement deviate from the to be expected performance? Carl Greenblum of Telrex writes in QST August 1956, page 11: "To improve the gain of a 3 element full size yagi by 3 dB one has to add 3 more elements, and the boom has to be lengthened too." See Fig. 11. W6SAI shows a similar relationship on page 74 of his Beam Antenna Handbook. DL6WU (with the PMG, Germany), says in CQ-DL 5/80, page 219: "The maximum gain of a yagi type of antenna is fixed by the boom length. Doubling the boom length will only increase the max. gain by 2.2 dB." See Fig. 12.
5. It is a belief and not a fact that some antennas intrinsically have a lower vertical radiation angle than others (W6SAI and others). As long as the antenna is only a few wavelengths above the ground, the topography of the ground in front of the beam controls the vertical radiation angle, which can be lowered if the antenna stands at a hill top and the ground slopes downward. More on this subject can be found in the articles in QST november 1974 by W2IMU, and Ham Radio August 1979 by W2PY.

A COMPLETE ANTENNA TEST

Now having pointed out the shortcomings of many "specified" performance figures for antennas it is fair for you to ask for an example of an acceptable and reasonably complete antenna test. Perhaps the best example I can give is the work of Guenter Schwarzbek DL1BU, when testing the HB35C or Periodic-5 antenna.

The writer described the Periodic-5 antenna (also known as VK2AOU-DJ2UT beam) in Amateur Radio April 1978. I may repeat, that no patent cover was obtained when the writer developed a new form of tri-band tuning of dipole elements used in this beam, because the manufacturers approached did not show any interest in 1958. DJ2UT added his improvements and has manufactured the P-5 beam during the

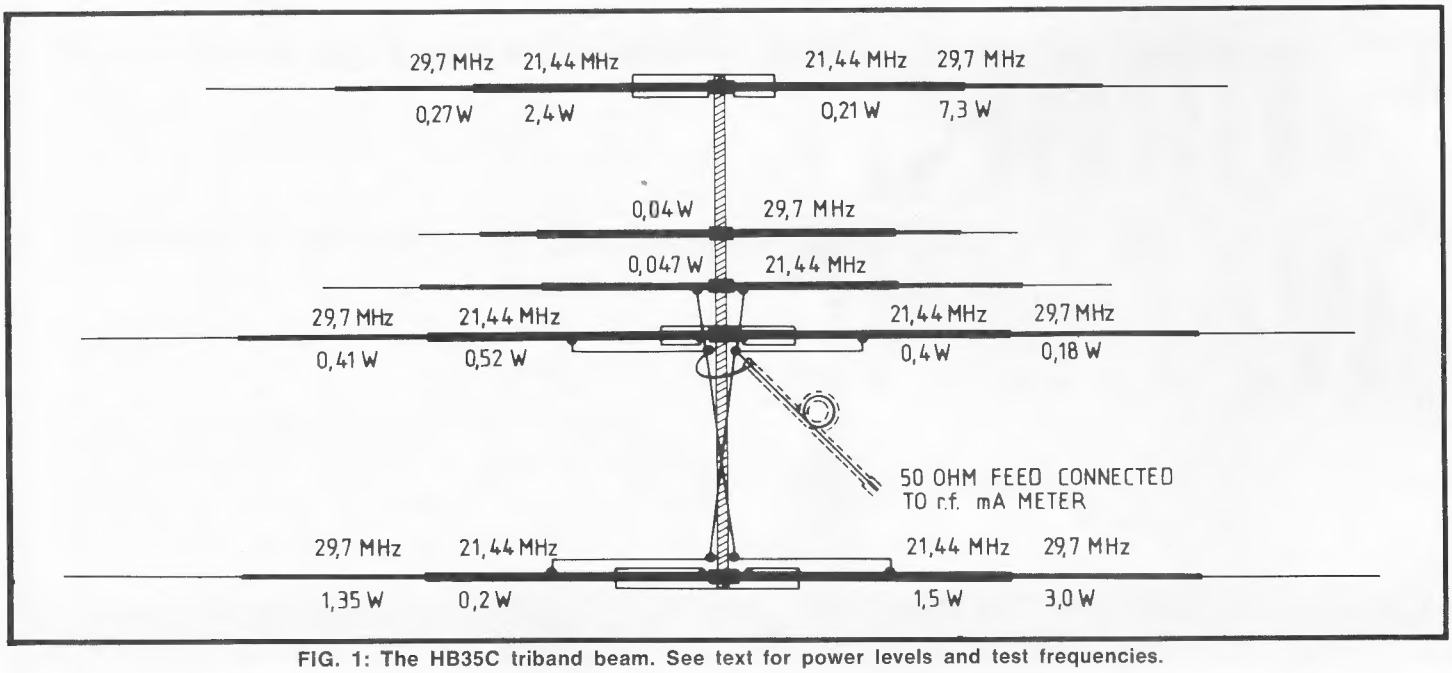

FIG. 1: The HB35C triband beam. See text for power levels and test frequencies.

last 15 or so years, selling them to well over 40 countries, including VK-land. Also the DJ2UT design was not covered by a patent. A Japanese version of the P-5 tri-band beam has been advertised by the Taniguchi Engineering Traders Co., of Japan, in "CQ-Ham Radio" for over a year. There was no need for TET to obtain manufacturing rights, and the writer has no business connections with either DJ2UT nor TET. Mr. Mac Y. Taniguchi replied to the writer's letter: "It was a great big job what you did 22 years ago, much faster than we did, we therefore no doubt send our admiration." It may be mentioned that patents are very costly to maintain and to defend, and they last only for 16 years.

THE TET TRIBAND BEAM MODEL HB-35C

Fig. 1 shows the layout of the elements, the boom length and the element length, all of which are nearly identical to those of the P-5 beam.

Director length: 8.3 m.
28 MHz radiator: 4.9 m.
21 MHz radiator: 6.4 m.
Triband radiator: 10.35 m.
Reflector: 10.7 m.
Radiator T-match: 2 x 1.2 m.
Reflector T-match: 2 x 1.41 m.

Hairpin length:
Director: 0.7 m and 0.2245 m.
Radiator: 0.54 m and 0.70 m.
Reflector: 0.9 m and 0.45 m.

Element spacing:
Triband elements: 1.95 m and 1.99 m.
Radiators (from main rad.): 0.39 m.

The only construction difference between the P-5 and the HB35C consists of the use of tubular coaxial air capacitors (HB35C) and coaxial cable capacitors (DJ2UT, P-5).

DL1BU measured the resonance frequencies at the hairpins after removing the element ends, which shows again that the triband (VK2AOU) method is not using traps on the band centre frequencies but L and C phasing components. After removing the hairpin loops also the coaxial capacitor values were determined, and the loop inductance was measured as well.

The capacitor C value is to some degree affected by the unavoidable inductance of the long tubular capacitors.

Fig. 1. shows the power levels at the test frequencies of 21.44 MHz and 19.7 MHz, which are necessary at the coaxial cable choke feeder end (matched for 50 ohms) to cause 50 mA of RF current at the current lobe of the triband elements. Large power required at the feeder, means small element RF current. This indicates a degree of lack of symmetry, which does not affect the horizontal radiation pattern. The shorter two elements carry a substantial amount of current, which could reduce the collinear effect and gain at 21 MHz and 28 MHz. DL1BU observed the same features also on P-5 antennas he tested.

Fig. 2 and Fig. 3 demonstrate how the VSWR changes when the height of the beam above ground is varied. (The original graphs were in colour.) Test runs were conducted at 5.5 m, 6.5 m, 8 m, 10 m, 14 m and 17 m height above ground. The SWR meter head was connected between cable choke and feeder at the aerial, not at the transmitter end of the feeder. This gives the true SWR values unsuppressed by the

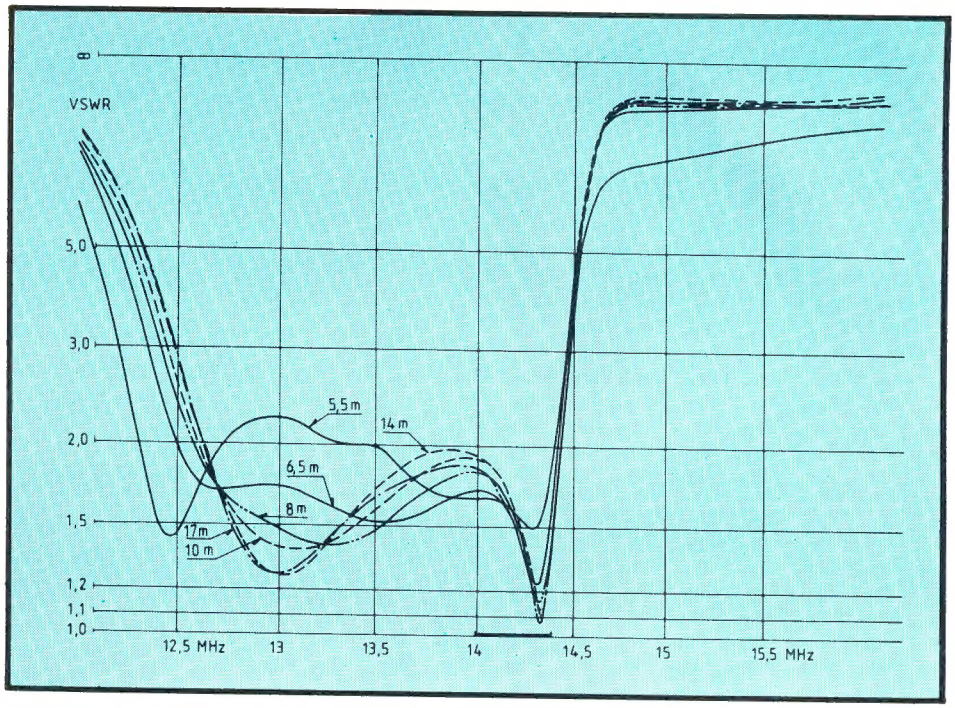

FIG. 2: VSWR of HB53C beam 12-16 MHz at various heights.

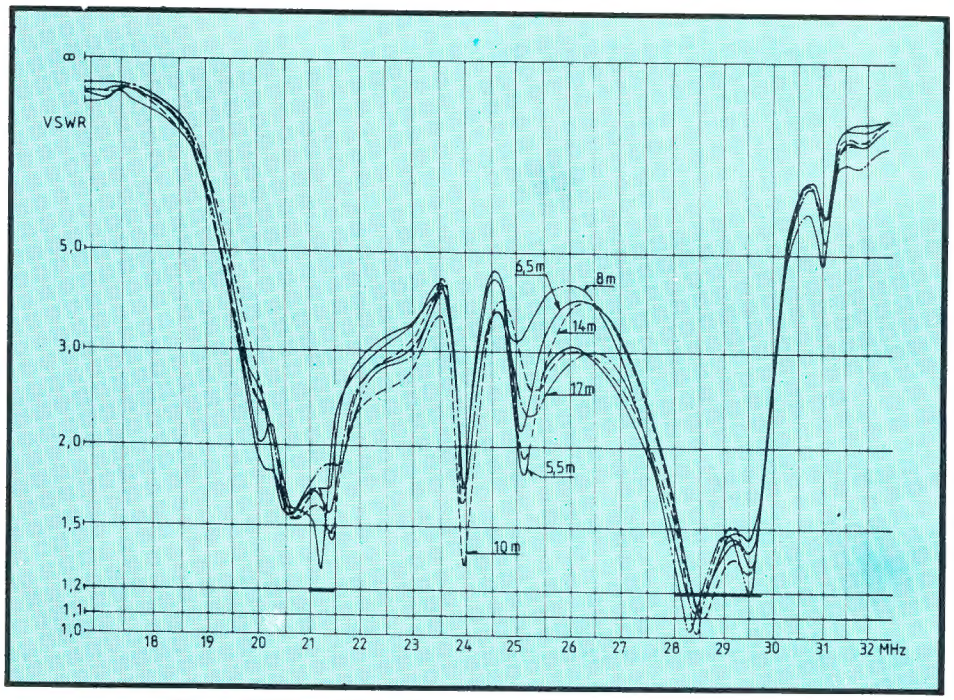

FIG. 3: VSWR of HB35C beam 17-32 MHz at various heights.

Test Resonance	Reflector	Radiator	Director	Operating Band
Loop Resonance (MHz)	17.5	20.0	20.3	15m
Loop Resonance (MHz)	24.0	26.6	28.85	10m
Loop-L	0.95	0.75	0.7	15m
uH	0.65	0.55	0.5	10m
Loop-C	55.6	53.2	53.5	15m
pF	42.7	42.1	41.5	10m

feeder cable losses. Thick lines indicate the 14 MHz, 21 MHz and 28 MHz bands. We can see already that this type of antenna has a very much wider SWR bandwidth thad other yagi beams which have to be tuned to either the CW, phone or satellite 29.5 MHz band portion. It was also found that even transistor finals will not need a matchbox if 25 m of feeder cable or so is used, because the mismatch is very small over the whole bands. Avoiding a mismatch has not much effect on the transmitted signal strength, because 1 S point less would require a 75 per cent power loss. SWR values of less than 1.5 are only of academic value, but higher SWR values could cause insufficient loading of the final amplifier and resulting in distortion even at moderate drive levels.

Fig. 4 shows the resonances, forward gain and front to back ratio of the HB35C antenna between 12 and 31 MHz. The antenna was 15 m above the ground. The test antenna was an active broadband dipole. Both antennas were so adjusted that the lowest main radiation lobe was used. The distance was 70 m. The dB values on the right-hand side of the graph are the power loss values between the antennas 70 m apart. Reference ½ wave dipoles were used too and tuned to the amateur band centres, and mounted in the same position the beam was before. The solid line represents the forward gain data, and the dashed line the backward radiated value (the difference is the f/b-ratio). It is interesting to see how the gain and the f/b-ratio vary over the 14 MHz, 21 MHz and 28 MHz bands. This demonstrates that one single gain figure for all bands or even for each band just can't be correct, and the same goes for the f/b-ratio. This applies to all other directional antennas!

Figs. 5, 6 and 7 show in more detail the frequency dependence of the SWR of the HB35C antenna. At the transmitter end of the feeder coaxial cable of about 30 m length the SWR is usually under 1.5 over all three amateur bands. This degree of wide band low SWR is usually only obtainable if one is prepared to sacrifice some gain. The 10 m graph of Fig. 7 shows the double resonances (low SWR) caused by the coupling of the triband 10 m tuning and the 10 m short radiator.

Figs. 8, 9 and 10 show in more detail the forward gain (solid lines) and the front to back ratio as backward radiation (dashed lines). Especially in the case of the 10 m and 15 m graphs we see that the shape and frequency dependence of the gain, SWR and backward radiation curves are all different. It is typical for all beams that the best f/b ratio is sharper than the gain resonance.

The energy loss the reference dipole caused when placed on the test mat, replacing the beam, can again be seen from the graphs.

The tested HB35C beam was correctly made, so that no changes were required after the beam was assembled following

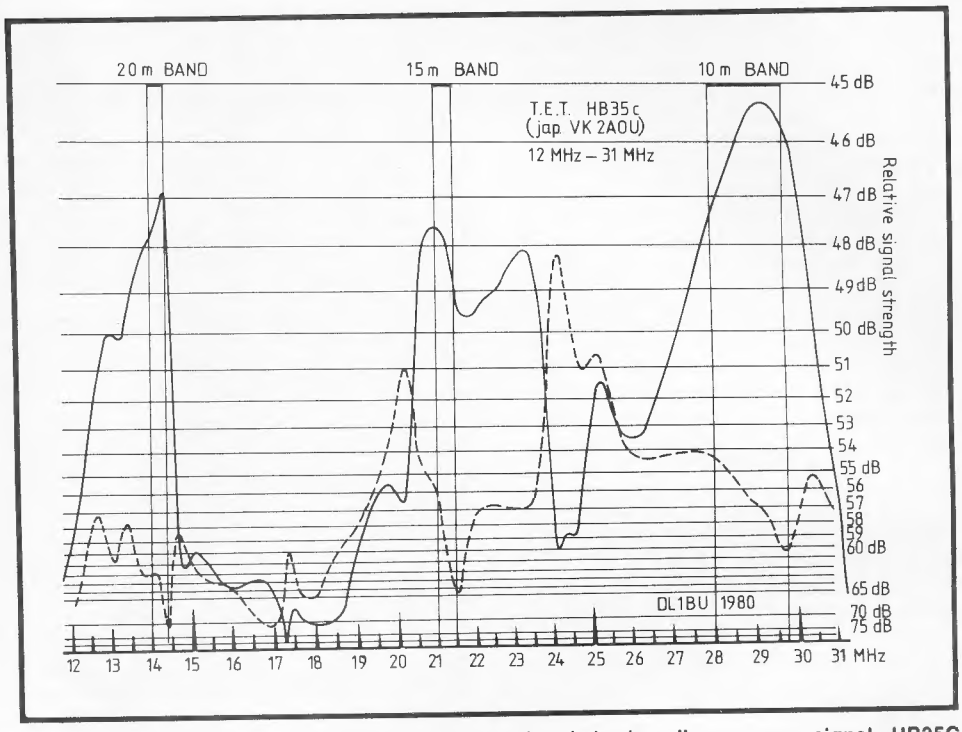

FIG. 4: Front to back tests. Full line forward signal, broken line reverse signal, HB35C antenna 15m above ground.

the instruction. This beam behaved identically to the one VK2AVA tried. Many DX tests were made between VK and DL and other countries in recent months. There was on 20 m no clear difference between correctly aligned P-5 antennas (like the one at VK2AOU or DF3FS, etc.), full size 4 element 20 m yagis (DL1KB) and 5 element log periodic yagis. The difference in received signal on 21 MHz and 28 MHz depended more on the antenna location and transmitter power. Under similar conditions, especially on 10 m, the gain was down by about 2 to 3 dB compared with other 3 element antennas. 2-3 dB can be had by adding 2-3 more elements, doubling the length of the antenna boom, or by doubling the transmitter power. With the SSB signal going through a 14 dB fluctuation from average to voice peaks, and adding several 6 dB S-units of fading, and the inaccurate mini S meters most receivers have these days, it becomes just about impossible to observe a 3 dB gain reduction between several antennas during DX communication. Most of us have to accept several times

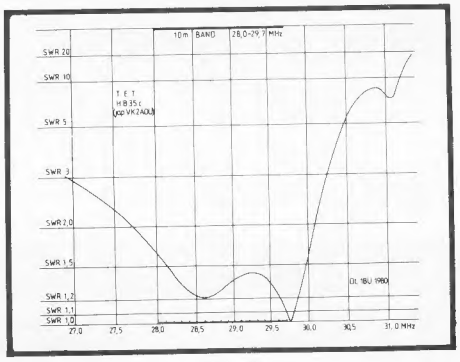

FIG. 7

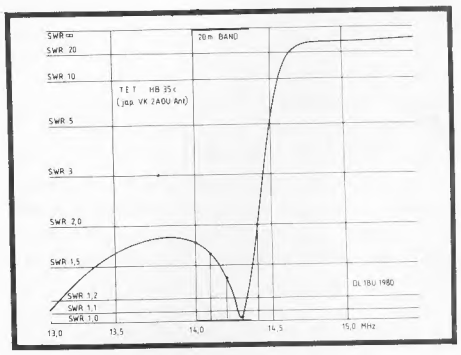

FIG. 5

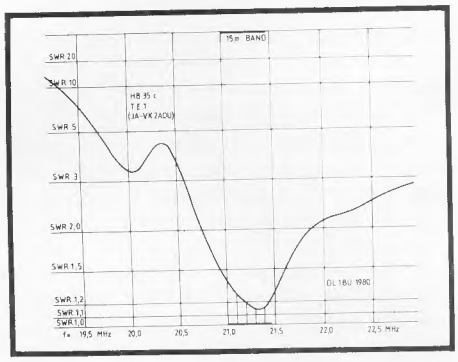

FIG. 6

this gain loss due to an unfavourable antenna location. Having no free hill top position costs several S-points of true 6 dB. Buildings with horizontal metal structures (mains wires, gutters and power lines along the street) are responsible for the fact that not "the antenna is the best RF-amplifier — often stated — but the antenna mast location deserves this No. 1 title. Antenna gain and PA power may be

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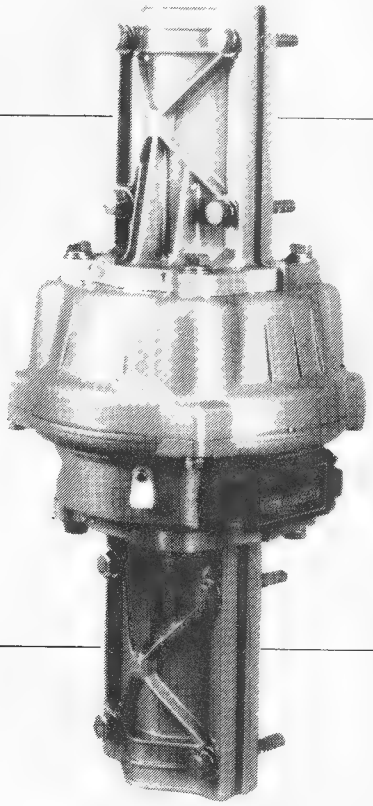

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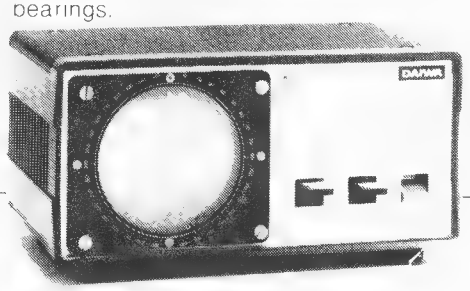

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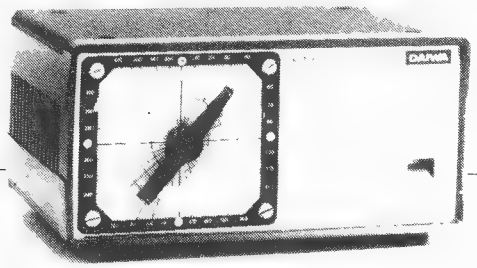

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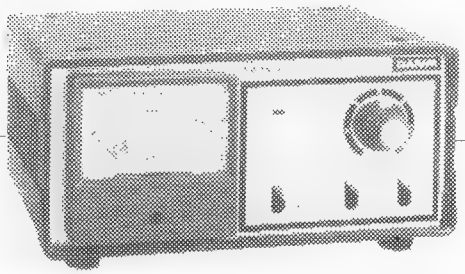

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rated about equal as No. 2 and No 3. The ionosphere and the operator's voice frequency range are other important factors we have to accept.

It will be appreciated that the test results DL1BU published did perhaps not surprise professional antenna experts, but many hams have not been brought up on a diet of truth in this field, and they found it hard to swallow the facts and to give up cherished beliefs.

APPENDIX

Owners of a receiver, which has a 10 or 20 dB RF attenuator, can quickly test whether the S-meter is correctly indicating 6 dB S-units (2 to 1 voltage changes). One tunes in a stable signal of S-5, S-9 and S-9 plus 20 dB indicated. Next, one switches the attenuator in at each signal level. One will most likely find that at S-5 indicated the S-units have only 1 to 3 dB and at S-9 plus the S-units may have 10 or more dB. Therefore this sort of receiver and S-meter is quite unsuitable to compare signals and antenna performance. The Technical Department of the DARC (DL1BU) tested a number of receivers and transceivers, and the uV values which correspond to the indicated S-meter reading are listed in Table 1. The results deviate greatly from the IARU recommendation (proposed by VERON and RSGB), which were also published recently in AR-VK.

The following two graphs (Fig. 11 and Fig. 12) show what any yagi type beam will have to look like for the desired forward gain:

ACKNOWLEDGEMENT

The honorary Technical Officer of the DARC, Dipl. Ing. Guenter Schwarzbeck DL1BU, who is a manufacturer and recognized expert on field strength equipment and a home brewing ham since his early schoolboy days, conducted during the last two years an antenna testing programme. The results were published in the German CQ-DL magazine under the heading "A walk through the antenna forest!" His equipment comprises: SWR measuring apparatus HP 778-D, network analyser ELKOM NA 900A, calibrated SWR test resistors, vector voltmeter HP and other valuable gear a ham can only dream of. There is a large atenna test field which is very level, on which stand five masts of various heights for DX antenna work. A second test range goes across a steeply sided valley over a distance of 225 m, and further 3 masts (some hydraulic) are to be found here. In addition DL1BU made so far 30 435 MHz model antennas which can be tested under free space conditions (no earth reflection effects). The writer appreciates very much the permission from DL1BU to use his test results for this test report in "AR". ■

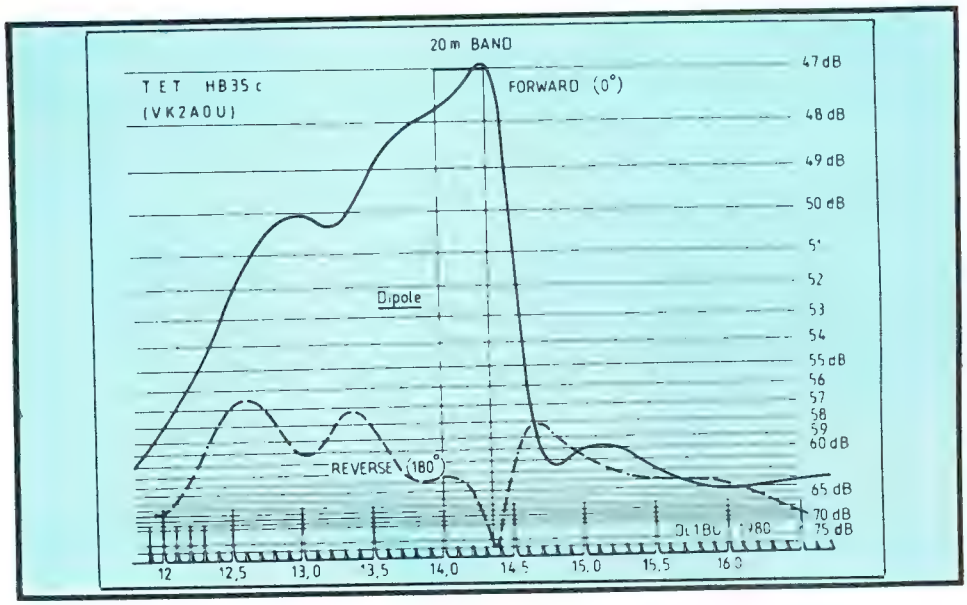


FIG. 8

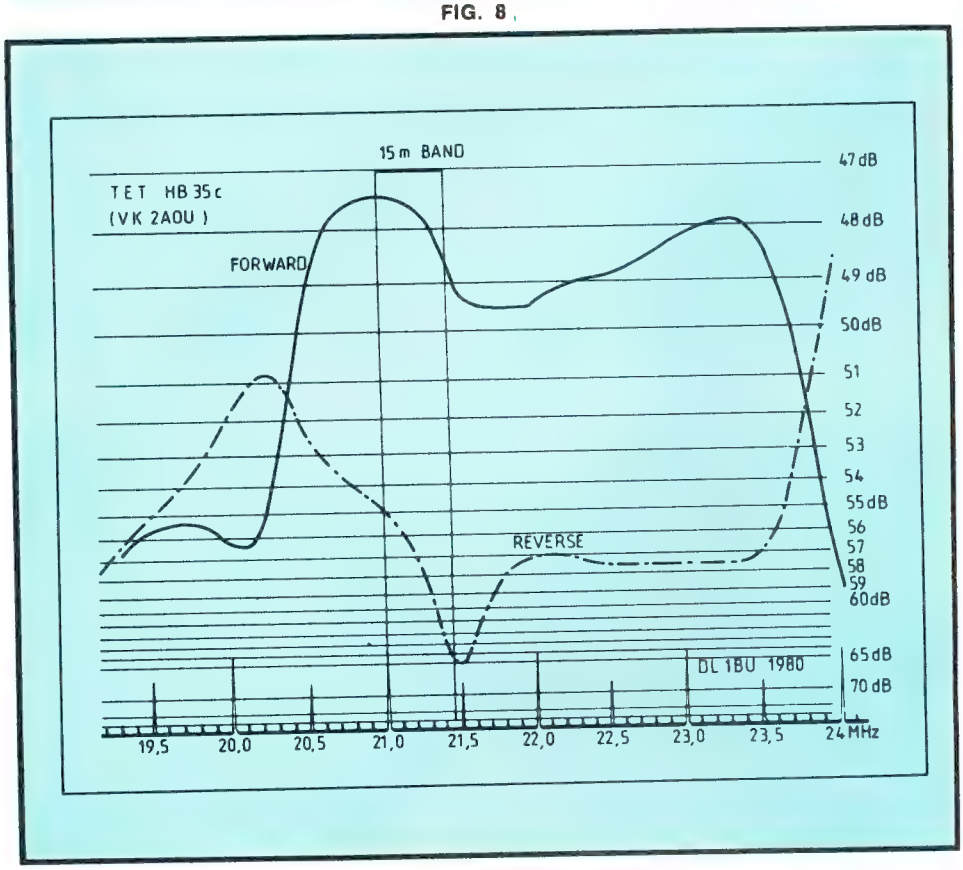


FIG. 9

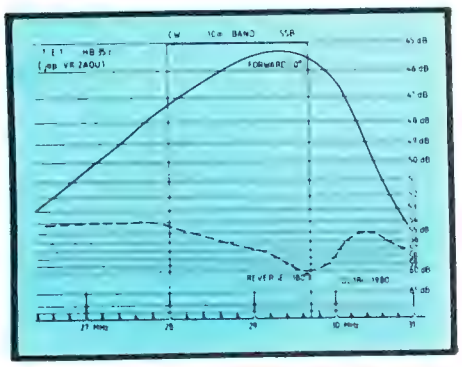


FIG. 10

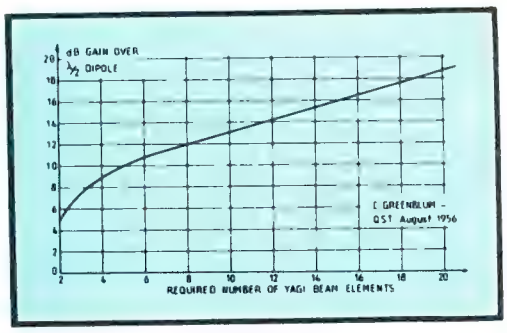


FIG. 11

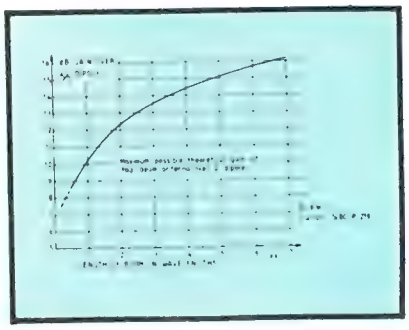


FIG. 12

TABLE 1

Summary of various S meter calibrations. Note that variations in sensitivity occur from one receiver to another even if they are of the same model. The shown values must not be construed as representing any other set apart from the one tested.

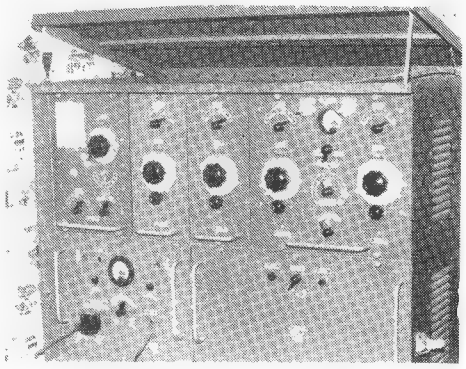
	S meter readings												
Receiver Type	**S 1**	**S 2**	**S 3**	**S 4**	**S 5**	**S 6**	**S 7**	**S 8**	**S 9**	**S-9 +10 dB**	**S-9 +20 dB**	**S-9 +40 dB**	**Test MHz**
FT-901	0.8	0.9	1	1.2	1.4	2	3.3	6	11	50	200	1700	3.5
TS-820	0.5	0.7	1.1	1.7	3.4	6	12.5	25	50	200	1000	2200	14
IC-701	1.9	2.3	2.7	3.3	5	8	12	20	30	—	120	930	14
SB-104	10	18	2.8	40	52	68	95	125	170	265	460	1000	7.05
TS-520-S	0.55	0.7	0.92	1.25	1.9	3	5.6	12	25	110	500	1500	3.5
FT-301	1.4	2.4	4	7	10	13	18	24	30	95	450	2700	3.5
FR-101	—	0.4	0.48	0.63	0.9	1.4	2.4	5	15	150	1500	65000	—
IC-245-E	0.26	0.37	0.5	0.68	1	1.6	3.2	7	13	—	130	1000	144
IC-211-E	0.33	0.56	0.73	0.87	1	1.2	1.45	1.9	2.5	—	8.5	50	144
Sony CRF-320	0.6	0.95	1.4	2.3	3.9	10	42	1000	>20000	—	—	—	3.5
FT-220	0.8	0.9	1	1.1	1.2	1.35	1.6	9.3	5	—	—	—	—
FT-221	0.75	1.2	1.65	2.15	2.7	3.5	4.4	5.9	8.2	17	43	160	—
IC-201	0.36	0.53	0.66	0.85	1.1	1.4	1.7	2.4	3.5	—	19	140	—
Multi-2700	0.29	0.37	0.41	0.44	0.47	0.51	0.55	0.64	0.8	—	—	250	—
TS-700-G	0.62	0.7	0.76	0.86	1	1.3	1.8	2.8	6	—	600	2000	—
FT-7	1.5	3	4	6.5	11	15	21	28	40	—	180	1800	7
IC-280-E	0.9	1.7	2.1	2.4	2.8	3.2	3.6	4	4.5	—	7.2	24	144
IARU Recommendation	0.21	0.4	0.8	1.6	3.2	6.3	12.6	25	50	160	500	5000	up to 30 MHz
IARU Recommendation	0.02	0.04	0.08	0.16	0.32	0.63	1.26	2.5	5	16	50	500	above 30 MHz

A larger War-Time Transmitter

A. R. Dexter VK5DL
37 Adelaide Terrace, St. Marys 5042

This Philips type SVC 100L/110 is my main transmitter. These transmitters were built in Australia for the US Navy towards the end of World War 2. It is described in the manual as "semi-portable" with a weight of 525 pounds! The cabinet size is 25 inches high x 35 inches wide x 21 inches deep. In addition, tubular steel legs were provided.

The frequency coverage is continuous from 1.9-21.5 MHz in six switched ranges. The unit is completely self-contained from its AC mains power supply right through to its Z-match antenna tuning circuit. The valve line-up is — oscillator, 6V6; doubler, 6V6; keyer, 6V6; doubler, 807; driver, 807; PA 813. Although CW is the principal mode of operation, provision is made for MCW or AM using grid modulation of the 813 by a 6V6 which acts either as an audio oscillator or as a microphone amplifier respectively. There are three switched powers giving inputs to the 813 of about 75, 175 and 250 watts on CW. Of course the drive can be reduced to give the desired 150 watts for amateur use.



Philips type SVC 100L/110.

The transmitter is constructed to extremely high standards. All RF components are silver plated and have ceramic insulation. The tuned circuits are very high Q having massive coils. A calibration chart dated 1947 is still correct in 1981. Servicing is easy as the transmitetr is constructed as 6 plug-in modules. The steel front panels are engraved. It is said that these transmitter cost £1200 to make — a lot of money in the 1940s!

It is not known how many of these magnificent transmitters were built or what they were used for. This particular example has serial number 27 on the case and serial number 21 on the power supply. Philips Telecommunications Ltd. at Clayton, Victoria, made a valiant effort to trace this model through their old files, retired personnel, etc. However, they could find no record of it ever having existed. I would be most interested to hear from any other owner of an SVC 100L/110 or from anyone else who knows anything about the history of the classic transmitter. ■

SUPPORT OUR ADVERTISERS

Crowbars and SCRs

Denzil Roden VK2BXF
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Correspondence received, following publication of the "Even Simpler Regulator", in the January 1980 issue of AR, apart from indicating a high degree of interest, also highlights a need for more information, on SCR principles and their application as crowbar overvoltage protectors.

Silicon controlled rectifiers, otherwise known as Reverse-Blocking-Triode Thyristors, are more commonly used in power control applications, such as: motor speed regulators and light dimmers. The "reverse-blocking" refers to its inability to conduct during the negative half cycle of the AC mains supply.

First things first, a crowbar is a protective device and normally does nothing, apart from draining a few milliamps from the supply. In the unlikely event of the regulator suffering a catastrophic failure, the SCR turns ON very fast, short circuiting the power source. This has the result of pulling the voltage, applied to the equipment, down to a safe level very quickly and then after a few hundred milliseconds, of disconnecting the power source completely by blowing the fuse. Rather the same effect as placing a crowbar across the supply terminals — hence the name.

Use of SCRs in crowbar circuits is a very elementary application and I do not intend to delve more deeply into theory, than is necessary, to provide a working knowledge for amateur constructors.

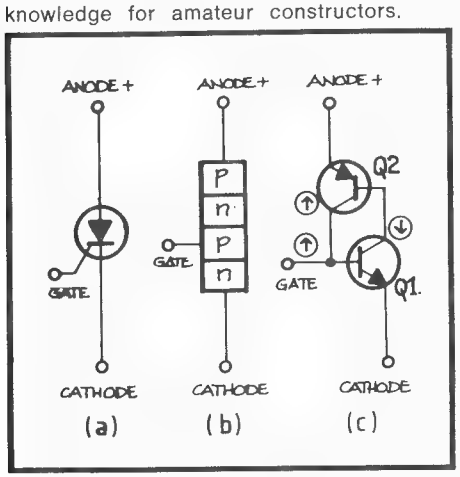

FIGURE 1

PRINCIPLES

The graphic symbol of the SCR is shown in Figure 1a, where the "diode" symbol indicates the reverse blocking characteristic and the gate suggests a controlling influence.

For crowbars, we are only concerned with forward conduction, with positive potential applied to the anode and zero volts, to the cathode.

A hypothetical representation of the inner junction structure is given in Figure 1b, showing the three p-n junctions and the reason for its general classification as a four-layer semiconductor device.

Since most of us are familiar with bipolar transistors, it makes operation of the SCR easier to understand by relating Figure 1b to its equivalent circuit, made up of interconnected p-n-p and n-p-n transistors, shown in Figure 1c. Where the cathode n-region is the emitter of Q1, the gate p-region is the base of Q1 and collector of Q2 and so on.

With the gate open circuit, Q1 is turned OFF and Q2 base current will be restricted to leakage, so Q2 will also be OFF. Under these conditions, with the anode-cathode voltage equal to 13 8V, the SCR leakage current is much less than a microamp.

For the SCR to "fire", the gate voltage must be increased until the gate-cathode junction is forward biased.

The gate parameters, of which *VGT* is the minimum gate-cathode voltage which will produce the gate trigger current and *IGT* is the minimum gate current necessary to switch the SCR ON, are usually specified as maximum values which guarantee turn-on of any device. For individual devices, *VGT* can be anywhere between 0.2V and 5V in extreme cases. Since we will be "calibrating" each crowbar, we are not concerned with what the exact trigger levels are.

However, with reference to Figure 1c, as the gate-cathode voltage is increased, a point is reached where Q1 turns ON. The interconnection of Q1 and Q2 producing positive feedback and regeneration as indicated by the polarity arrows, as follows:

As Q1 base goes positive, its collector goes negative, causing increased base current flow in Q2. The phase inversion of Q2 causes its collector to go positive, boosting the original rise in trigger current.

The result being that Q1 and Q2 turn each other ON, to saturation point, very quickly and will remain turned-on, even after the triggering voltage has ben removed.

With the triggering voltage removed, the only way to turn the SCR OFF is to either remove the anode voltage or to reduce the anode current to below the specified "holding current", *IH*, which ranges from 20 to over 100 miliamps for various types of SCR. So long as not less than *IH* is allowed to flow, the SCR will be "held" in the ON state.

So an SCR is really just a semiconductor switch, which may be likened to an electrically latching relay, in that, it will remain ON for as long as the supply voltage is applied.

RATINGS

In our crowbar application, the SCR will remain turned-on only for as long as it takes to "Pop" the fuse, just a couple of hundred milliseconds, during which time the anode-cathode voltage will be only a volt or less. Since this voltage was the source of triggering current, that influence is, of course, removed.

The forward ON current is the only SCR parameter for concern in our application and is specified in two forms:

ITM(RMS) is the current the device can pass continually with suitable heatsinking together with due regard for the maximum power rating of the particular device. The figure is 16A for type C164D and 35A for C228.

ITSM, the peak surge current, is a momentary rating and is usually specified for a time duration of one cycle at 60 Hz. For C164s it is 160A and 350A for C228s

The form of specification of the latter is hardly relevant to crowbars and in fact the fusing current may be less than *ITM(RMS)* but it could sit somewhere between the two parameters.

In practice, type C164s work well for power supplies of up to 10A capacity, while C228s will accommodate regulators up to 30A.

MOUNTING CONSIDERATIONS

Power dissipation is no real problem because normally (we hope) the regulator will be functioning correctly and the crowbar will have nothing at all to do, so the SCR will be cold. Only in the event of a component failure will the SCR turn-ON and momentarily, will generate heat, even then not enough to warrant more than a very small heatsink, not more than two square inches in surface area.

On the subject of heat, a major disadvantage of the SCR is that its gate sensitivity, or triggering level, is affected by temperature variations. For this reason the device should be mounted away from energetic heat sinks.

The mounting stud of the type C164 forms the anode terminal and is connected to supply positive, therefore must be insulated from other metal work, connected to supply common. Insulators are not easy to obtain, not being supplied by the more common vendors, but can be had from more professional sources such as George Brown in Sydney.

To save a lot of hassle, I prefer to use the type C228E(3), available from Silicon Valley, to name one source. The "3" suffix indicates that the mounting stud is isolated electrically, thus eliminating the need for insulation. (The additional cost of insulators equalises the cost difference of the two types anyway.)

Isolated stud devices are recognisable by a third solder lug at the top, connected to the shell (anode).

The "E" suffix can be any letter and indicates the maximum working voltage and ranges from 60 Vto 800V, so is not relevant in our 13.8V application.

Some trouble has been experienced with some SCRs showing various "in-house" markings with the occasional intermittent gate terminals.

So, for those two reasons, the type C228E(3) could be the best choice, in addition, it has a higher rating.

Wiring to the anode and to the cathode should be sufficiently heavy to carry the fusing current as was explained in the original article.

CALIBRATION

Because of the wide spread of actual triggering voltage levels between particular devices, together with the tolerance spreads in 12V zener diodes, it is necessary to select a value for resistor R9 such that the crowbar will "fire" if the regulator output exceeds 15V.

The 15V threshold is chosen since it is the plus ten percent tolerance, normally specified for "mobile" amateur equipment, but any other "firing" level may be chosen to suit a particular need

Variation of the value of R10 has almost no effect on the triggering level, since SCRs are current operated devices and at the point of triggering the current in R10 does not change to any significant extent. At that point the gate-cathode voltage is about one volt.

The gate bypass capacitor C5 absorbs voltage transients which might otherwise cause false triggering, such as might occur at normal switch-on, one or two microfarads will do as the value is not critical.

The test circuit is shown in Figure 2 and can be built up in its final form, with the exception of R9. The actual regulator can be used as the variable voltage source, if a variable resistor of a couple of hundred ohms is connected in the common lead of the regulator IC. When set to minimum resistance, the voltage will be the design value (13V) which can then be increased to test the crowbar, a 10MFD capacitor across the pot will reduce ripple on the output.

It is not necessary to have a high current power supply in order to set-up a crowbar, nor is it necessary to expend a bag of fuses to achieve that end!

All that is required is a voltage source, variable between 13V or less, up to about 16V and capable of supplying 30 milliamps or more. A unit having adjustable current limiting is suitable, but not indispensable.

Where only a high current supply is available, it can be used with the inclusion of R*L* (1 k-ohm, ½W), which will limit the SCR current to about 20 milliamps.

The meter (M1) indicates the triggering voltage and if R*L* is used meter (M2) indicates when the SCR has fired. Alternatively, the LED lamp may be connected in series with R*L*, making M2 unnecessary.

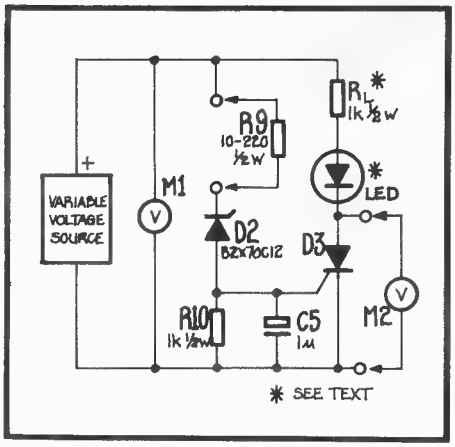

FIGURE 2

Another way, shown in Figure 3, is not to connect the SCR anode to the supply at all, but to use an ohmmeter to measure the change in SCR resistance, which, in the OFF state, will be several hundred k-ohms, or a couple of hundred ohms or less when turned ON. Be sure to connect the "Black" meter lead (battery positive) to the SCR anode. Depending on which ohms range is selected, I*H* may, or may not be exceeded, but it is the change in SCR resistance indication that matters.

So that is all there is to it, increasing R9 will raise the triggering level. The normally available value increments . . . 68, 82, 100, 120, etc . . . will allow precise enough adjustment, the actual value can be between 10 and 220 ohms.

Be sure to omit R*L* in the finished assembly!

The circuit shown in the original article was suggested to allow ease of inclusion in existing power supplies. The preferable connection point for the SCR anode is immediately after the fuse, FS1, as shown in Figure 4. Connection after the regulator is satisfactory, since regulators do not fail by half measures, so the failed components will not impose significant impedance on the fusing current.

TESTING SCRs

The state of serviceability of an SCR can be tested quite easily, using an ohmmeter.

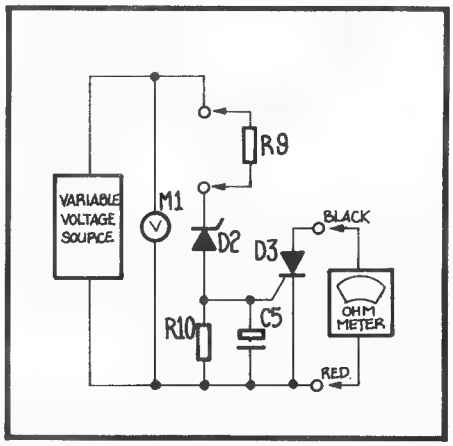

FIGURE 3

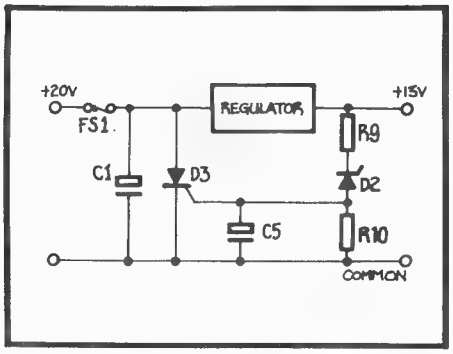

FIGURE 4

With the gate disconnected, the anode cathode resistance, in both directions, is several hundred k-ohms. With the ohmmeter battery positive, connected as in Figure 3, the SCR resistance will drop to a hundred ohms, more or less, when a resistor of around 100 ohms is connected between anode and gate. The SCR will remain in the ON state if the ohmmeter internal resistance can support I*H*. ■

EDITORIAL IN AUTUMN '81 ISSUE OF "LYREBIRD"

Does anyone honestly believe that the privileges and facilities enjoyed by Australian Amateurs could have been won by individual and unorganised efforts of single amateurs or separate clubs? The WIA has, without question, contributed tremendously in presenting our cause to the highest authorities and achieving official recognition which has enhanced our hobby and kept at bay, thirsty frequency-grabbing claim-jumpers. Our Government Departments, like their counterparts in other countires, are accustomed to dealing with recognised representative bodies. They certainly will not deal with individuals in matters of general policy. It is regrettable that there are some who rightly or wrongly are critical of, and won't support, the WIA for a variety of reasons. These people, however, are quite content to enjoy Amateur benefits which some seem to imagine are god-given rights. Younger and less experienced Amateurs do not fully realise what they owe to the WIA on their behalf. Surely it devolves upon us, who have enjoyed our hobby for many years, to set the example and do what we can to back the only authoritative association which can fight for us. ■

QSP

AR GOING PLACES

AR is certainly going world-wide — a typical example was the reprinting by reciprocal arrangement in "Radio ZS" (journal of South Africa Radio League) of the article by Ralph Holland VK2ZZB, "Audio Activated Saturating Switch" which appeared in our August 1980 issue.

We have also agreed to requests for various article reprints from Ham Radio and 73 magazines. Radio Communication, QST and Break-In have reciprocal reprinting rights also.

You never know where "your" article may show up next. ■

VK2TTY News — An Insight

S. E Molen VK2SG
13 Pendle Way, Pendle Hill 2145

Have you ever wondered how the VK2TTY news started, or even who started it and why? Well let me tell you some of the history of the news broadcasts, and how they arrived at what they are today.

About four or five years ago there were only three RTTY stations in Sydney, VK2EG, VK2KM and VK2SG. There were others in other States, especially VK3 and VK6 as well as VK5. At this time there was a shortage of machinery. But fortunately some machines became available, and as there seemed to be little interest in them they were grabbed by the above three, cleaned, made to work, and put in the shack for future use.

Some visitors to these shacks were fascinated by machines printing overseas stations as well as various press stations. A few people were seen leaving various shacks with model 15s under their arms, and bits of paper in their pockets with circuits drawn on them! After weeks of sweating over hot soldering irons, noises started to appear on the air, and phone calls were made asking for test signals to be transmitted. VK2SG happened to be one of the chaps who had time on Sundays to radiate signals, and so most Sundays RYRYRYs appeared on the air from his place. But after many weeks he became bored with sending RYRYRYRYs! One week he had received a good signal from the States with some information about a convention at the statue of the "Wounded Boot". That may seem to be a little odd, but it appears that in the US, there is a statue to Paul Revere's boot, which was wounded when he was a colonel in the American army. So the next time VK2SG was asked to send RYRYs, he finished up with the story of the "Wounded Boot". That went down well!

About this time some of us decided to see how many were really interested in RTTY and if it would be possible to start an RTTY group. So the next week after the RYRYRYs an announcement was made that there would be a meeting of those who were interested in RTTY. If my memory is correct, 143 people turned up at the meeting. That decided us to form the VK2 RTTY group. Also it was suggested that a broadcast be made every Sunday at 0030Z. Originally the call VK2SG was used, but after some problems about the use of VK2SG for broadcast purposes, the call VK2TTY was obtained from the Department, with permission to do the broadcast. And so the broadcasts started; one might say from a small start big things have happened. We think that the coverage that the news gets at the present is a big thing. It certainly seems to have a large viewing audience, and we try to present a good general coverage of news, both Australian and overseas Of course, we are always looking for news from anywhere.

After three years or more of transmitting the news, one begins to feel that it is getting terribly automatic. Some people take it all for granted, and really don't think much about the gathering of the news. They possibly think that it all happens with ease. All the news is supplied, and all the news editor has to do is to put it together into some kind of form and present it. But I can assure you that it is not quite as easy as that (I wish it was). A fair amount of work goes into the gathering of information for the Sunday broadcast. Let me tell you how it all happens.

Firstly, approximately eleven news broadcasts are printed during the week, such as GB2ATG, W1AW, VK4TTY and DL2TX. W1AW is the main news service that is watched, as they broadcast every day and change their news items from time to time. There may be some items in their broadcasts that would be of interest to Australian amateurs. At times, of course, even they have interesting news, so we look further for items. This entails looking at the bands and seeing what the chaps are talking about, maybe that can be used, who knows? We watch several bands, usually 14, 21 and 28 MHz with 7 MHz for local news.

Don't imagine we prefer overseas news, we are very interested in local news as well, but we receive very little so have to depend on the overseas items. After all, overseas doings affect us here as well, and so could be of interest to Australians. One point here is that happenings in VK2 could be of very little interest for example to VK6. What we want is news of Australian general interest. Then, of course, we have the DX news. Here again we watch W1AW for the phone and CW DX news, and use it because we feel some of our members appreciate DX information. Then there are the RTTY DX notes. At the moment VK2TTY is the only station in the world (as far as we know) that sends out RTTY DX information. This information is gathered off air from various parts of the world, from stations such as ON4BX, I8AA, DK3CU, K7BV, JA1ABC, JA1DSI and several others, all of whom are keen DX men and know who is doing what in the DX world. We, of course, return the compiment by telling them of activity in this part of the world, or news which they may have missed. In this way we keep up with the latest DX doings, again because we feel that some members are interested in this side of RTTY.

Having gathered what news we can, we read it through to make sure that it is still interesting, then we edit it to fit without taking three pages to tell a one paragraph story.

After the news has been read and edited, it is put on tape. This is usually done about 2000 hours local time on Saturday so that if there is anything interesting from Europe on Saturday afternoon, it can be included as the latest news for the Sunday broadcast. Cutting the tape and correcting the spelling usually takes about two hours. It is then run through completely to check running time. Further editing may take place at this point, so that the tape will occupy 30 minutes. Usually the finished tape is fairly close to time and sent as originally typed. Then another look around the bands. If anything special is heard, a further bit of

The new generation of ICOM gear continues with the Mobile IC-730 HF All Mode Transceiver able to transmit 100 watts of RF continuously. The design of every detail has been carefully considered. Notice how all the major controls are located conveniently for mobile operation!

- Choice of 1KHz, 100Hz or 10Hz tuning speed for quick and precise QSY.
- One memory per band for storage of your netting frequencies.
- Dual VFO's can be coupled together or separated for split frequency operation.
- Remote scan up/down with optional HM-10 microphone.
- Electronic dial lock prevents fc shift due to vibration.
- Choice of IF or PB tuning.

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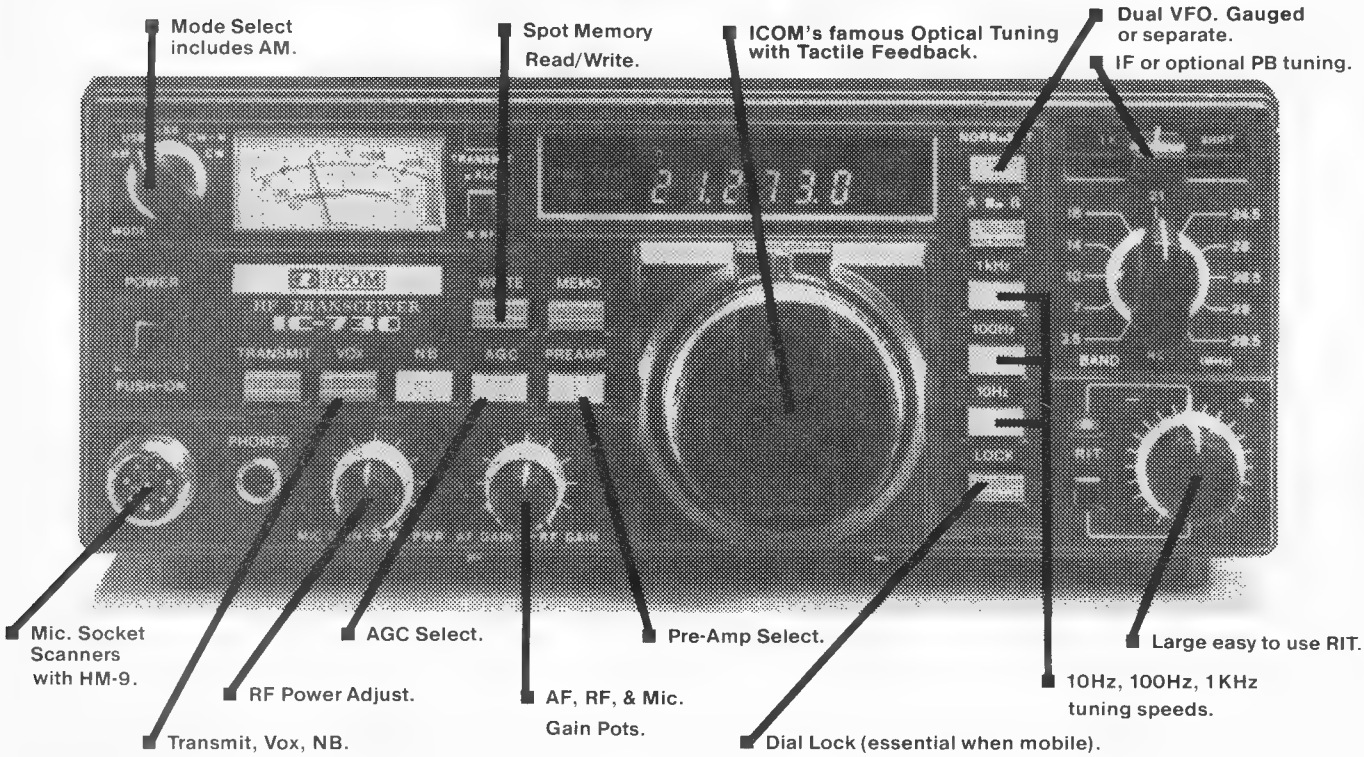
ICOM IC-730 HF ALL MODE RADIO TOP PERFORMANCE FOR UNDER $1000*



Typical Performance

General

Frequency Coverage: All WARC bands.
Frequency Control: CPU based 10Hz steps with dual VFO's.
Frequency Readout: 6 digit 7 segment displays.
Power Requirements: DC 1.8V ± 15% neg. ground, 20 Amps on tx. Weight: 6.4Kg.

Transmitter

RF Power o/p:
SSB = 200 watts PEP input
CW = 200 watts input.
AM = 40 watts output.
Adjustable.10 watts to max o/p
Harmonic output: 50dBC.
Spurious output: 50dBC.
Unwanted side band: 55dBC.

Receiver

System: quad conversion superhet. Complete with IF shift control.
Sensitivity: (pre-Amp enabled).
SSB, CW: Less than 0.15uV for 10dB S+N/N.
AM: Less than 0.3uV for 10dB S+N/N.
Selectivity:
SSB,CW: 2.4KHz at −6dB; 4.8 KHz at −60dB.
AM: 6.0KHz at −6dB; 18.0KHz at −60dB.
Spurious Response Rejection: > 60dB.

Vicom International Pty Ltd
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VICOM

* As at time of publication.

tape may become a stop press item on the Sunday broadcast.

So we have assembled the news, cut the tape, and we are ready for the broadcast. But what about the equipment? None of the equipment used by VK2TTY is owned by ANARTS but is all privately owned by one of our members. For instance, the usual operator of VK2TTY, VK2SG, radiates on 14090 and 7045 kHz simultaneously. This requires two transmitters and aerials. For 20 metres we use a Drake TR4C driving a Dentron MLA2500B linear, for 40 metres a FT107 driving a Henry 1KD-5. Yes, both are big linears, but considering that we are running 400 watts output on both bands for the broadcast period, one needs a linear that will run that output for the period without issuing smoke! I can assure you that they do not get too hot during the broadcasts (well, not *too* hot!). The two metre broadcast is picked up from 20 metres and re-transmitted by VK2ZXL, who has a very good signal. After the 20 metre broadcast, VK2TTY then transfers to 21095 kHz to broadcast the DX news for those interested. Even some overseas stations look for this broadcast. The aerials used on 20 metres are the quad at 65 feet, and for the 40 metre broadcast the G5RV at about 50 feet. The broadcast is repeated on 3545 kHz at 0930Z in the evening, again using the FT107 and the Henry linear to the G5RV and running 400 watts. With this equipment we are apparently getting a god coverage around Australia. There are times, of course, when conditions are against us, and the coverage may not be as good as it should be. We have yet to work out how to beat these circumstances. By the way, the quad is usually pointed about Darwin, as it has been found over a long period to be the best direction, but we are always open to suggestions, provided that all stations now receiving the news will still receive it from the suggested beam heading.

"THIS IS VK2TTY. AS FROM SUNDAY 18th JANUARY 1981, FOR A TRIAL PERIOD, VK2TTY WILL BE RADIATING ON TWO FREQUENCIES IN THE 20 METRE BAND, THE SECOND TRANSMISSION WILL TAKE PLACE ON 14095 kHz WITH A BEAM HEADING WEST. WHILE THE NORMAL TRANSMISSION ON 14090 kHz WLL MAINTAIN ITS NORMAL NORTHERLY BEAM HEADING. THE 14095 kHz TRANSMISSION WILL BE RADIATED (FOR THE PRESENT TESTS) BY VK2DGA, WHILE THE 14090 kHz TRANSMISSION WILL BE DONE BY VK2SG. THE TIME OF THE BROADCAST WILL BE AS USUAL — 0030 GMT.

YOUR REPORTS AND COMPARISON OF THE TWO TRANSMISSIONS WOULD BE APPRECIATED, ESPECIALLY FROM VK5 AND VK6.

IF THE TESTS ARE SUCCESSFUL AND COME UP TO EXPECTATIONS, WE HOPE TO MAKE THESE DUAL TRANSMISSIONS A PERMANENT FEATURE, FOR THE BENEFIT OF OUR MEMBERS IN VK5 AND VK6. THIS IS VK2TTY."

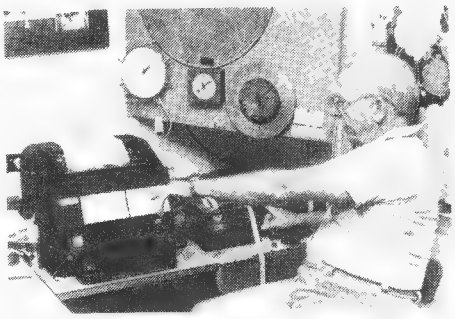
At VK2TTY's present location, it is possible to change bands by operating the necessary switch. Any transmitter can be switched on or off without affecting any other transmitter level, nor is there any inter-action between transmitters. The audio from any one of four receivers can be directed to the demodulator and printed on either the VDU, model 15, or the model 14 tape perforator if required. This again is just a matter of selecting the correct switch associated with that receiver. The VK2TTY CW identification is sent from one head of the model 14 tape distributor (which has three heads). This head has been modified to send CW at 15 w.p.m. The other two heads of the model 14TD are wired in such a way that it is not possible to run two heads at the same time, but on stopping one head the next selected head will immediately start and continue without any break in the continuity.

So, that is how the news is gathered, asesmbled, typed and transmitted. From one week to another about twelve hours are spent watching the various signals on the air to see what is interesting and what is happening around the world as well as in Australia. Maybe we miss things at times, but we try to do the best we can!

One last thought. We are always looking for news from anywhere. If you have sent us some, and we have not used it, you may not have addressed it to the broadcast officer, or it may be that it was of purely local interest, or it could mean that for that week we had a lot of news and we just could not use your effort at that time. We may use it later, if it still applies. It is not that we are not interested, we would be very happy if the news were all Australian, but with no news arriving we have to use what we consider the best available. Not all the happenings in the world get into the newspapers. Some, less important than others, may still be good news and we hope to use them before they are "dated".

So, please send us what you can to help us present an Australian news service, not VK2, or overseas. We have always strived, and will continue to present Australian news, but it is only with *your* help that we can present *your* news.

We hope that this has been interesting to you and has given you some idea of how the news arrives at your place on Sundays. ■



Two views of author and shack.

RFI — EMC — EMI — EMP — EME

Tony Tregale VK3QQ
Federal EMC Co-ordinator

Radio Frequency Interference — Electromagnetic Compatibility: Call it what you will! World-wide it is one of the biggest problems for everyone connected with radio and electronics.

Unlike big industry, the Amateur Radio Service is a non-profit making organisation and does not have large finance available with which to protect its interests. The main assets of the Amateur Service are: technical knowledge, responsibility, enthusiasm and a great interest in the continued well-being of the service.

In this, the year of the review of the Wireless Telegraphy Act, the WIA are taking a responsible attitude to the EMC problem by co-ordinating a response to the proposed new RFI legislation, as well as setting up an EMC Advisory Service, under the direction of the Federal EMC Co-ordinator.

The high-powered legal angle of basic legislation is perhaps, beyond the scope of the average amateur operator — we have to leave most of this to the legal "boffins"! However, I'm sure they will require lots of assistance with the "nuts and bolts". This is the area where all amateurs can help by sending constructive comments and suggestions through the National EMC Advisory Service.

EMC advice of a down-to-earth nature is available to all Australian amateurs through the National EMC Advisory Service. The main aim of the service is to ensure that all Australian amateurs have access to the best national and international EMC advice and technical information, at the lowest cost. It is intended that the service should complement and assist any existing RFI groups — not clash with them. Main direction is towards: the newly licensed amateurs and those who have worked hard for their licence, but on the first press of the key are in trouble with RFI.

The service operates on a central databank principle, together with a pool of RFI specialist advisors. In order to maintain a large selection of the best available data, the central file must be fed through the co-operation of all amateurs, in sending details and reports of any RFI problems or answers, suggestions, ideas and any general information in connection with EMC.

An information exchange will benefit all amateurs for: "United we Stand and Divided we Fall". ■

Around Australia with Amateur Radio

Ron Jones VK2VND
6 Curtis Court, Carlingford, NSW 2118

Early in 1980, nine of us decided to do a trip around Australia by road from Sydney, north and return. The party consisted of four wives and five males. Considerable planning was done by Dick Millers VK2NRM and his wife, Barbara. The vehicles to be used were a Ford F100 (Dick and Barbara), a Chrysler Galant Station Wagon (Dot and Norm Williams) and the balance of us (Patricia and Ron Prudames, John Armstrong and Joy and myself, Ron Jones VK2ND) in a Toyota Land Cruiser. A lot of work was done on the vehicles to get them ready, the F100 was set up with two radios, TS120V, and CB unit for communication with the road trains we would encounter, the Chrysler Galant CB only, and the Land Cruiser was set up with TS120V and CB unit.

A date was set, and Dick VK2NRM took off with his party of four on Sunday, 20th September, and made for Lightning Ridge, where contact was made with the rest of us back home on 80m that night, reporting that everything was OK.

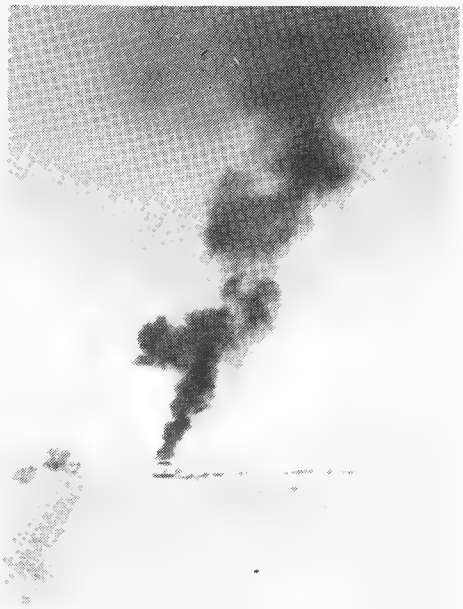
I might add that five of us could only get six weeks leave for the trip, whereas Dick VK2NRM and his party had eight weeks leave.

A sked had been lined up for us back home to contact Dick and his group in two days time but to no avail. We received news by land line that approximately 60 km south of Kynuna (Qld.), with a temperature of 42 degrees, Dick met with disaster, a slow combustion fire started in the back of the F100 and Dick and Barbara only had time to get out of the vehicle before it was completely engulfled in flames — the only warning being that Dick couldn't see out of his rear vision mirrors and after walking to the rear of the van found it completely in flames. Dick shouted at Barbara to jump and all they saved from the fully equipped F100 was a cooler with two cans of soft drink and what they stood up in — thongs, tee shirt and shorts. The heat was so intense they could only watch the $20,000 bonfire and do nothing about it.

Dot and Norm had been travelling some way ahead due to the horrendous dirt road and stopped at Kynuna to wait for Dick and Barbara, not knowing of their terrible plight. In the meantime a transport vehicle picked up Dick and Barbara and brought them into Kynuna. Here they got a lift into Cloncurry where the people of this town took them under their wings and showered them with good old Australian hospitality.

And now we find out what Amateur Radio is all about.

Thanks to Richard VK4NOD — he contacted us back home with further news that everyone was safe and sound and that the four of them would be continuing



Dick and Barbara meet with disaster between Kynuna and Cloncurry.

on the trip around Australia and would wait for our group in the Toyota to catch up with them in Mt. Isa.

We arrived in Mt. Isa and met Dick and his group who were full of praise for what the local VK chaps had done in arranging matters. Dick at this stage had purchased a new Falcon Station Wagon for the balance of the trip but no radio.

So now we only had one radio, the TS120 in our Land Cruiser, to try and keep in touch with George Millers VK2VVO and Alf Barns VK2CE, back home in Sydney. Contacts were made regularly either on 10 or 15 metres which cheered everyone up immensely. We continued on to Camooweal, then on to the Three Ways just north of Tennant Creek, and viewed the John Flynn Memorial. From there on to Katherine and Kunnunurra, south to Lake Argyle, which has a capacity nine times that of Sydney Harbour and is a fisherman's delight, then on to Halls Creek. Contact was made back home to Sydney again, to VK2VVO and VK2CE.

Local information was given to us after we had contacted Keith VK6KC at Kuri Bay and Jack VK6RJ at Broome, regarding the road condition to Fitzroy Crossing; and so on to Broome.

The people we met through Keith VK6KC in Broome were wonderful to us. I might add that he is stationed in Kuri Bay as radio operator there for the company he works for, and it's a pretty lonely spot. Thanks Keith!

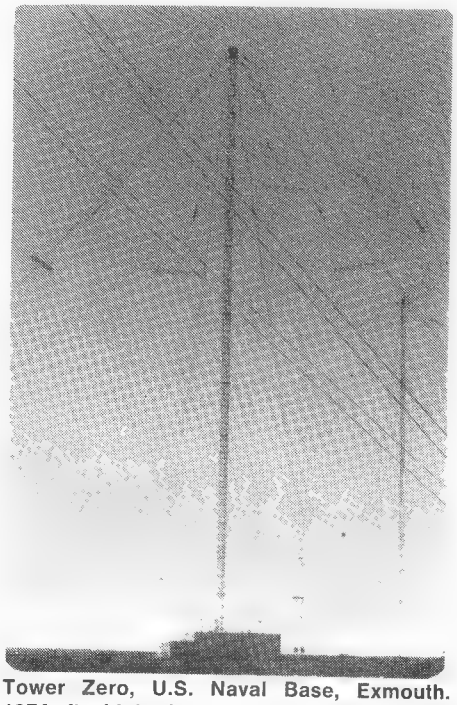
We then continued on to Port Hedland, a very lonely trip, 600 km of nothing but open spaces and only one place halfway in between called Sandfire Flats, which has petrol and a cool drink and accommodation if required. At Port Hedland we made contact with Brian VK6NBX, who we had spoken to from home in Sydney, so it was nice to hear a familiar voice.

Our next stop was to travel inland to Wittenoom and on to Tom Price. Now the country changes again, hills and hills of iron ore as far as one can see. Tom Price is a wonder — to think that a whole town can be built so far inland and look like any Sydney garden suburb. Throughout the whole of the open cut iron ore field radio is used exclusively by all the vehicles to control all operations. We then followed the railway line to Dampier, where the iron ore is taken by trains that have over 160 trucks on them, each carrying around 150 tons of ore.

At Dampier we were lucky to get in touch with Brian VK6NBX again, and also Wally VK6NCL and Jack VK6NXL, who are all in the Geraldton area, but more of these chaps in a moment.

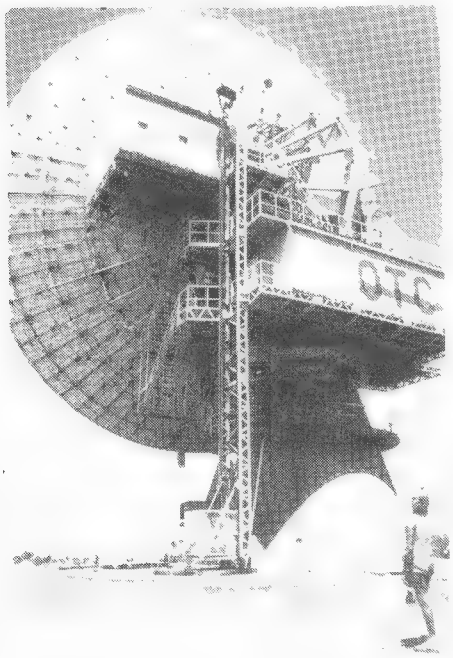
Our next stop was to get to Exmouth and to contact a good friend Marty VK6FO, who is based there.

Again, this is what Amateur Radio is all about. To arrive on a chap's front door at 8.30 p.m. with a party of nine people in all, and to be welcomed in the way we were, and the following day to be given the VIP treatment that was extended to us — Marty, on behalf of everyone, thanks!



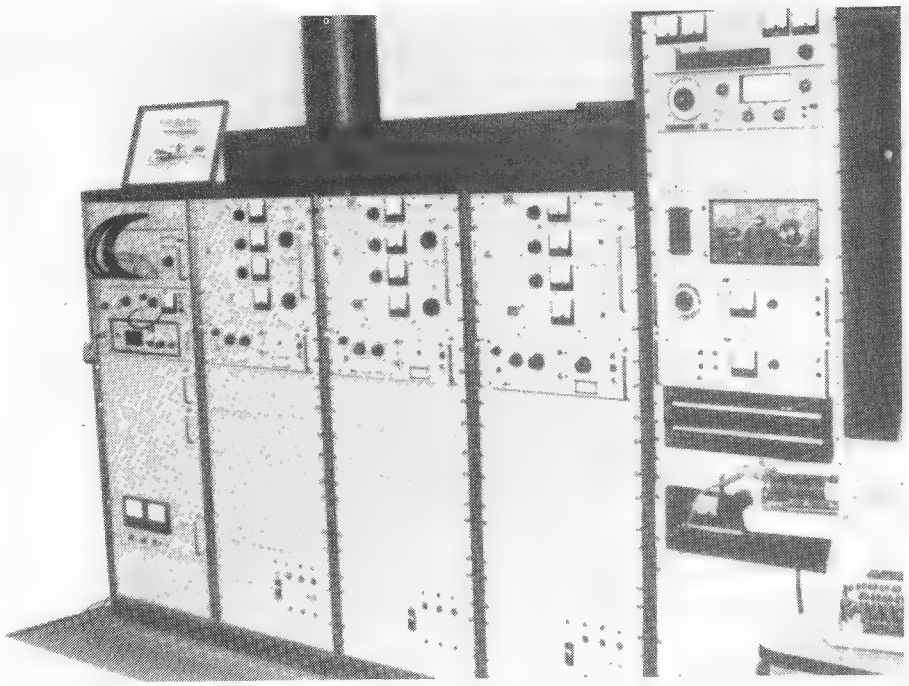
Tower Zero, U.S. Naval Base, Exmouth. 1274 ft. high, it has lift for two people inside. Centrepoint for all the rhombics.

Carnarvon was next on our list to see; one couldn't miss that large communications dish operated by OTC and tthrough their generosity an inspection was arranged. One more for the books.



OTC dish at Carnarvon.

On to Geraldton, to be brought into town on 10 metres by our good friends Jack VK6NXL and Wally VK6NCL. Jack, we all thank you for that morning tea; you and your good lady. But Wally wasn't to be outdone; we met him at the airport and Wally, having the use of a Cessna 182, took everyone in our party for a flight over Geraldton district and coastline — absolutely the only way to travel, but one can't stop when one wants to.



Flying Doctor base at Kalgoorlie. Transmitter and receiver.

Then everyone finished up at Brian's VK6NBX and his wife Rhonda's property for dinner. What hospitality!

On to Perth. Five days of rest here and everyone wishes we could have more time but we are only halfway around. Contacts still being made on 15 metres back home to Sydney, to VK2VVO and VK2CE.

Down to Augusta, Albany and Esperance, and very little radio contact until we move north to Kalgoorlie and make contact with some VK6 and VK5 chaps. We visited the Flying Doctor base where I met Lorraine Winchombe, who does a wonderful job, being the operator both for the base and the School of the Air — keep up the good work, Lorraine.

Lorraine Winchcombe (left) with nursing sister. Lorraine operates base and conducts the School of the Air.

We had been told that if we operated on the border of VK6 and VK5 an award was available from the VK6 radio club in Perth, so we set up camp just past Eucla and made contact on 80 metres with Bert VK6NPM, Con VK6PM, Bob VK6GD, while we were right on the border. Thanks chaps. (Award received.)

Continuing across the Nullabor Plain, you find you are only a few kilometres from the ocean and the scenery is wonderful. From here we travelled down to Port Lincoln, around the Eyre Peninsular to Adelaide, where we saw the city at night from the hills. From there on to Victor Harbour, up to Renmark, down the Murray River to Mildura on to Hay, Narrandera and back home to Sydney.

The total trip took six weeks (for five of us) and eight weeks (for four of us), we travelled 16,842 kms in that time and we saw some wonderful things in this country of ours and met some wonderful people, through Amateur Radio. ■

The author (left) and Wally VK6NCL with his Cessna 182.

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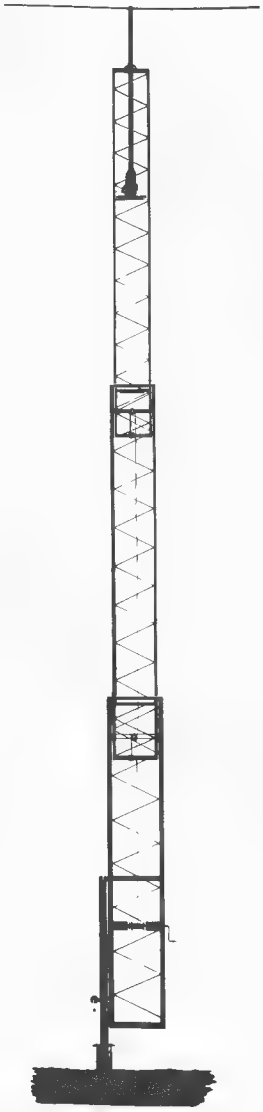

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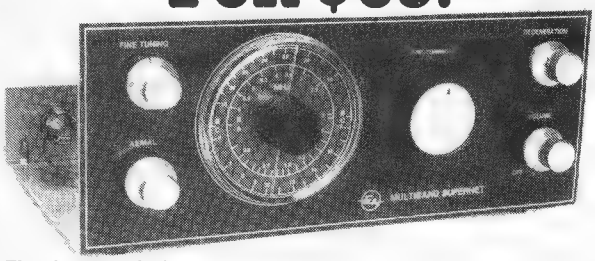

This fantastic little multiband superhet receiver was designed by Ian Pogson of Electronics Australia (see the November 1980 issue). Eight plug-in coils are used to cover the frequency range from 0.5 to 30MHz. The unit can resolve AM, CW and SSB signals.
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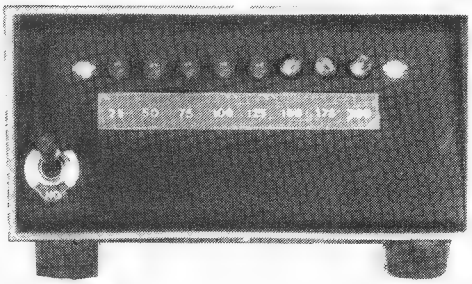

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Operation Whitestick

Len Childs VK3AKU
5 Trends St., Dandenong 3175

1981 is the Year of the Disabled and we have invited disabled amateurs to contribute articles. — This is the first:

Often, during a QSO with a new contact, I am placed in the position of having to say, "Sorry, but I am a blind operator". This invariably brings forth the comment: "Ah, you are a whitestick operator", together with a number of questions such as, "How do you cope, how do you find your frequencies, how did you get your licence"; and so on.

This contribution will, I hope, help other hams understand just how we do cope.

My first contact with radio was in the early 1930s when, as a schoolboy, with the aid of an older friend, I managed to make my first radio gear, a crystal set, and acquired a little knowledge about radio in general.

During World War 2 I had some contact with radio used on aircraft and, after the war, owned and operated my own radio and electrical business for a short while. At this time I also attempted to get a ham radio licence but failed the CW. I therefore shelved the idea for the moment.

The reader may have gathered that I was not born blind but lost my sight late in life at the age of 55 and, as I'd spent a lifetime in electrical engineering, it was natural that when I reached sixty, the retiring age for my profession, I turned to radio to fill in my leisure hours.

The first thing, of course, was to obtain a licence. This was done by following the same general course as a sighted person. With the aid of a friend who was already a licensed operator, I attended night classes conducted by the local radio club. Not being able to read textbooks, it was necessary to have tape recordings for home study. Some of these tapes were already available while others were kindly produced by my friend. In all I used some sixty hours of tape in order to obtain the knowledge required to pass the examinations.

I learned CW in much the same way as a sighted person would with the exception that I had to start and journalise everything, right from the beginning.

Thanks to the co-operation and understanding of the Telecom Department and to the courtesy and kindness of its officers, I was able to undergo oral examinations in my own locality.

I managed passes in all sections and my appreciation goes to the supervising RIs for their understanding in my most nerve wracking experience.

I now had a licence. The next problem was to get on the air. To do this I needed equipment. After much consideration my choice of equipment was a fully solid state rig which had the advantage of that, whenever the band-change switch was operated, the frequency zeroed back to the lower edge of the band. This, with an analog tuning knob, meant that I could find any frequency on any band. The rest of the functions of the rig were very simple to understand and operate so having an ear accustomed to audio effects, signal reports, etc., came fairly easily to me.

It wasn't long, however, before just successful operation on air didn't seem good enough, and I realised that if I wanted to be on par with sighted hams with full knowledge of such things as SWR reading, power up the pole, etc., I would need aids to help me achieve this.

Enquiries throughout VK3-land showed that there was no group or club who had ever made a concerted effort to help the disabled amateur or disabled person who wished to become an amateur. Therefore I contacted some friends in the US who, through their channels, provided project material of this nature.

Having the material in hand, I then enquired if there were amateurs in my area who would be willing to help. There certainly were. I'm happy to say that, with their help, I now have some of these aids in actual operation, with others to follow. My sincere thanks go to this small group, for without their help I might have given up long ago.

These aids include an antenna tuning unit INDICATING AUDIBLY when an acceptable SWR reading has been achieved.

A talking frequency readout which consists of the voice board from a talking calculator interfaced with the visual digital readout. At the push of a button this device QUOTES VOCALLY the frequency appearing on the display.

An audio meter reader which can be interfaced with any meter or multimeter, giving an audible indication of the percentage of full scale deflection which the meter reads.

A 24 hour braille clock, in my case kept on GMT.

Audio light probe which gives an audible signal when LEDs, etc., are being checked and found glowing.

Other items which could be classed as standard have been manufactured for me.

The Author

These include power supplies, dummy load, etc.

As well as the above I also have literature on CW sounding frequency readout, audible multimeter and others which have not yet been evaluated. Information on any of the items mentioned is available to any interested person.

All other equipment used in my station is of a standard nature with the exception of a braille writer which I use for keeping my log and the antenna rotator indicator which has had its front removed so that I may follow the pointer by touch. QSL cards I write out with the aid of a slotted masking plate, made for me by another one of those helpful hams without whose combined help I could not have reached my goal.

I often wonder how much easier it might have been if we had in Australia an organisation similar to the Handi Ham organisation in the USA.

And for my final final may I say that I am not truly a white-stick operator but more likely could be termed a Guide Dog mobile.

Good DXing. 73s.

VK3AKU signing, clear. ■

QSP

DX LISTENERS

April 1981 issue of the DX Post received from the Southern Cross DX Club Inc. of G.P.O. Box 336, Adelaide, S.A. 5001. A very well presented magazine for the broadcast station listeners and packed full of useful information and frequencies. Definitely a "must" for listeners interested in this field. ■

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MK 1024 elect. keyer w/programmable memories	$195
HI-MOUND HK-702 telegraph key	$42
JACKSON CURRENT SENSING CAR BURGLAR ALARM	$45
POWER SUPPLIES 240/13.8V DC:	
2A regulated	$35
5A regulated	$55
6A regulated w/OVP	$75
OVERLOAD VOLTAGE PROTECTION KIT for 2 & 5A supplies	$17.50
ASAHI TYPE bumper mount	$6.00
STANDARD BUMPER MOUNT	$3.00
TRANSFORMERS 240V/2 x 9V at 3.3A now	$10.00
HD SPRING MOUNT w/SWIVEL BALL MOUNT	$15.00
HD SPRING MOUNT	$10.00
SWIVEL BALL MOUNT	$5.00
HD GUTTER MOUNT 3/8" 24 thread base	$7.00
MIRROR/ROOF BAR MOUNT	$3.00
MAGNETIC BASE w/CABLE & PLUG	$16.00
MAGNETIC BASE w/out CABLE	$15.00
STANDARD MARINE BASE	$4.00
SLOPE ADJUSTABLE MARINE BASE	$4.00
ADAPTORS 3/8 stud	.25¢
ADAPTORS DOUBLE MALE 3/8"-5/16"	.40¢
ADAPTORS DOUBLE FEMALE 3/8" 5/16"	.70¢
ADAPTOR 3/8" Male-5/16" Female	.70¢
COAXIAL 3-way push button switch	$15.00
DUMMY LOAD 30W to 150 MHz	$12.00
MIC PLUGS AND SOCKETS 2, 3, 4, 5, 6 & 8 pin types available. Prices vary from	$1-$2 according to type.
5-SECTION LP FILTER KENWOOD & SIMILAR	$25.00
YM 37 YAESU 8 pin standard mic	$15.00

ROTATORS - All rotators complete w/bottom mast bracket and for 28V AC operation

CDE HAM-IV HEAVY DUTY brake pwr 5000 in/lb	$215
KEN KR-400 MEDIUM DUTY brake pwr 1300 in/lb	$120

CABLES & BALUNS

RG-8U quality coax cable 50 ohm per metre	$1.25
RG-58U quality coax cable 50 ohm per metre	.50¢
6 core rotator cable per metre	.75¢
BN-86 balun 50 ohm 1:1 1KW	$25.00
HI-Q balun 50 ohm 1:1 1KW	$15.00

TRANSCEIVERS RECEIVERS ACCESSORIES

Yaesu Musen, Trio-Kenwood and Icom equipment available plus accessories. Ring, write or call in for information brochures and prices.

KENWOOD TR-9000 2M all mode transceiver	$560
KYOKUTO FM-2025A Mk 2 transceiver 2M FM10 memory 25W scanning	$340

SWR/POWER/FS ETC. METERS

JD-110 SWR/PWR/FS (black) 1.5-144 MHz	$15
JD-111 SWR/PWR/FS (silver) 1.5-144 MHz	$15
JD-140 Antenna matcher 100W 25-40 MHz	$15
JD-171 SWR/PWR/FS 1.5-144 MHZ	$20
JD-175 SWR/FS/ant. matcher 1.5-144 MHz	$25
JD-176 SWR/PWR/FS/Matcher 1.5-144 MHz	$35
JD-178 SWR/PWR/FS/MOD/MATCHER 1.5 144 MHz	$40
JD-181 SWR/PWR/FS 1.5-144 MHz	$15

MARINE TRANSCEIVERS

2W 3 ch. hand-held w/crystals	$70
5W 6 ch. hand-held w/crystals	$105
5W 6 ch. mobile w/crystals	$115

CONNECTORS

PL-259 RG-8U and RG-58U types each	.75
SO-239 1, 2 or 4 hole mount each	.75¢
RIGHT ANGLE connectors	$1.50
T-CONNECTOR 3 x SO-239	$2.00
T-CONNECTOR 2 x SO 239, 1 x PL-259	$2.00
PL-258 Double female 2 x SO-239	.75¢
DOUBLE MALE 2 x PL-259	.75¢
UG175/U reducer for RG-58U coax	.20
UG176/U reducer for RG-59U coax	.20¢
ADAPTOR RCA male to SO-239	.75¢
LIGHTNING ARRESTOR PL 259/SO-239	$2.00
MLS RIGHT ANGLE PL-259 to RG-58U	.75¢
GLP RIGHT ANGLE SO-239 to RG-58U	$1.00
M-RING car body mount 2 x SO-239	$1.00
UG363/U 2" feed thru D/F 2 x SO-239	$1.50
CABLE PLUG for RG-213 cable	$4.00
BNC CONNECTORS SILVER PLATED WITH TEFLON INSERT:	
UG88/U male in-line plug for RG-58U	$2.00
UG1094A/U panel mount socket	$2.00
UG89/U in-line socket for RG-58U	$2.00
UG914/U double female adaptor	$3.00
UG491A/U double male adaptor	$4.00
UG255/U BNC male to SO-239	$2.00
UG273/U BNC female to PL-259	$2.00

All prices are NET, ex Springwood NSW, on pre-payment with order basis. All risk insurance is free of charge, allow for freight charges by air, road, rail or post, excess will be refunded. Prices are subject to change without prior notice. All orders cleared on a 24 hour basis after receipt of order with payment.

Proprietor — ROY LOPEZ (VK2BRL)

FORWARD BIAS

VK1 DIVISION

(Postal Address· WIA (ACT Division) Inc., PO Box 46, Canberra, 2600 ACT)

C. T. Vidler VK1KV
Hon. Sec. and Publicity Officer

REPEATER NOTES

The Mount Ginini and Black Hill Repeaters continue to provide very good service, and this was particularly evident during the Easter weekend with a considerable amount of traffic being generated by mobile stations on the Hume and Monaro Highways as well as a large number of visitors to Canberra.

It is expected that these two repeaters will also provide their usual sterling service to travellers passing through Canberra on their way to the Snowy Mountain snow resorts.

Input frequencies to these repeaters are as follows:—

Mount Ginini: Channel 6350 (47) — 146.350 MHz.

Black Hill: Channel 6300 (46) — 146.300 MHz.

The Ginini repeater is located about 40 km south-west of Canberra at about 5800 feet above sea level and Black Hill is about 15 km west at 2800 feet.

Max VK2ZLX has advised VK1 members that it is hoped that the new Nowra area 2m FM repeater, Channel 7200 (76) will be placed in service on the Cambewarra Mountain, near Nowra, in about one month's time. Max reports that it is probable that with 36 watts out of an omni-directional antenna this repeater will be usable by VK1 2m addicts.

It is hoped that this Division's UHF repeater will be installed and operational before the onset of winter in the high country closes the road to Mount Ginini.

AMATEUR RADIO CLASSES

Classes conducted by this Division are continuing at Melba High School.

While the number of students at the AOCP classes remains constant there has, fortunately, been a fall off in the number of students at the NAOCP classes. Maybe this only proves that it is difficult to conduct a "crash" course for the May exam in conjunction with a full course for the November exam. Anyway we wish the ongoing students good luck.

DIVISIONAL PROPERTY REGISTER

The Division's Committee is anxious to compile an up-to-date list of Divisional assets. The Property Officer, Fred VK1MM, has had a similar lack of success in locating a number of items, includin:—

Several CW practice oscillators,
Books, and
A chassis punch set, etc.

One of the missing items is of particular historic interest. This device, constructed mainly of brass, outputs CW by means of a rotating drum, pins and a punched paper tape.

If you have, or have seen, any of these items please notify Fred on 58 1354 (AH) or 72 2224 (BH).

It is not intended to recover all of these items but merely to record their locations.

NEW MEMBERS

The President, Committee and members of the VK1 Division are pleased to note the considerable number of new members who have joined the Division recently.

MONTHLY MEETINGS

The monthly meetings of the VK1 Division are held on the fourth Monday of each month in Room 1 (downstairs) in the Griffen Centre, Bunda Street, Civic. Doors open at 7.30 p.m. for QSL business, book sales and the usual technical talk.

These meetings are kept completely informal. Most evenings we have a speaker to address us on some topic related to radio.

Scheduled for an early date is a talk by one of the staff of the Air Traffic Control Tower at Canberra Airport. This talk will be, we hope, a preliminary to a visit to the Air Traffic Control Centre. (Sorry, fellas, but no "hands on" experience during this visit. Hi Hi.) ■

A Call to all holders of a

NOVICE LICENCE

Now you have joined the ranks of Amateur Radio, why not extend your activities?

THE WIRELESS INSTITUTE OF AUSTRALIA
(N.S.W. DIVISION)

conducts a Bridging Correspondence Course for the AOCP and LAOCP Examinations.

Throughout the Course, your papers are checked and commented upon to lead you to a SUCCESSFUL CONCLUSION.

For further details write to:

THE COURSE SUPERVISOR, W.I.A.
P.O. BOX 123,
ST. LEONARDS, N.S.W. 2065

VK2 MINIBULLETIN

COUNCIL REPORT

At its April meeting, Council welcomed Castle Hill RSL Amateur Radio Club to affiliation with the Division. Letters were received from three members complaining about interference from the Sydney Channel 0 TV test pattern. Council decided to write to SBS requesting that the Channel 0 test pattern transmissions be curtailed to allow daytime amateur operations on 6m. Two members in the Sydney area have volunteered as Intruder Watch reporters. Volunteers are still needed in country areas of NSW to ensure Statewide monitoring of commercial intrusions into our amateur frequencies. If you want to help preserve our bands and can send in reports on intruders, please write now to the Divisional Secretary, Box 123, St. Leonards 2065.

Many thanks for recent donations to the Division's Tower Fund from A. Tilley $20, Castle Hill RSL ARC $5, anonymous $5, Hornsby ADARC $30, Blue Mountains ARC $20, J. Spencer $10, T. Mills $25, S. Pall $20, J. Pages $20, R. Fookes $25, A. May $30, Wagga ARC $32 and N. Turner $10. The fund now (1/5/81) stands at $592 with a target of $2,000. If you would like to donate to this fund, please send cheques made out to the WIA to Box 123, St. Leonards 2065.

The seven Divisional Councillors will hold the following positions on Council for 1981/82: **Athol Tilley VK2BAD,** President, Affiliated Clubs Liaison; **Susan Brown VK2BSB,** Secretary, AR sub-editor, publications; **David Thompson VK2BDT,** Treasurer, 2nd Vice-President; **Tim Mills VK2ZTM,** 1st Vice-President, WICEN, Repeaters and Beacons; **Stephen Pall VK2VHP,** Education, New Membership; **Henry Lundell VK2ZHE,** Technical and Property Atchison Street; **Jeff Pages VK2BYY,** Broadcasts, Property Dural. In addition to Council positions, the following people were also appointed: Correspondence Course Supervisor, **Cec Bardwell VK2IR;** Technical Dural, **Roger Henley VK2ZIG;** Slow Morse Supervisor, **Mark Salmon VK2DI;** Library Officer, **Bill Hayes VK2AJL;** Education Service Supervisor, **Ken Hargreaves VK2AKH;** WICEN State Supervisor, **Howard Freeman VK2NL,** WICEN Committee, **Michael Richter VK2BMM, David MacKay VK2ZMZ, Neville Wilde VK2DR, Arthur Giles VK2ZGA, Christo Simeonoff VK2ZAX, Sidney Griffiths VK2AHF, and Eric van de Weyer VK2ZUR;** Dural Committee, **Doug Morison VK2ZYM, David Walters VK2AYO, Phil Cole VK2BQC, Charlie Walker VK2BXX.**

Volunteers are still needed for the Repeater Committee, Intruder Watch and AR Publicity Officer. If you can assist, please write to the Divisional Office.

At the April Council meeting, Stephen Pall presented ideas on proposed activities to celebrate the 75th anniversary of the

WIA in 1985. If you, as a member, have any ideas on how the oldest amateur radio society in the world should celebrate its 75th anniversary, why not jot them down and send them in to Council?

As cracker night is a week earlier this year, the original date chosen for the next Divisional auction clashed with the VK2WI fireworks night at Dural. The auction has been postponed to Saturday, 27th June, at 1 p.m., 14 Atchison Street, Crows Nest. Items from members for auction will be accepted between 10 a.m. and 12 noon on the day of the auction.

As from the AGM of 28th March, Articles 82 and 48c of the NSW Division's Memorandum and Articles of Association have been deleted and replaced with the following:—

82. Any club whose membership includes in part or whole five (5) or more Ordinary Members of the Division having a common bond, either by reason of geographical affinity, or mutual purpose or interest, or otherwise, may affiliate and operate within the framework of the Division.

48c. Be forwarded to the Office of the Division at least thirty (30) days prior to the date of the Annual General Meeting.

DURAL REPORT

The new studio facilities are nearing completion thanks to the efforts of Doug VK2ZYM and Reg VK2ZCK. By the time you read this, the broadcast should be originating from Dural on a full time basis. If you would like to volunteer as an engineer or news reader for the Sunday broadcasts, contact the Divisional Secretary. Volunteers would be rostered on a two/three monthly basis.

Tranmissions are now provided from Dural on 6 and 2m SSB, the frequencies being 52.12 and 144.12 MHz. The transmitters used on these frequencies, which were built by Jeff VK2BYY, have a common exciter and feed approximately 10W PEP into the beacon antennas. Consequently, the Dural beacons will be off air on Sundays between 10.45 a.m. to 12 noon and 7.15 p.m. to 8.20 p.. The 10m beacon is now operating on its permanent frequency of 28.262 MHz using A1 (CW) identification. The 2m beacon will be moving to its assigned frequency later this year.

VHF MOBILE TRANSCEIVERS

The NSW Division has for sale to NSW members a quantity of the following units:

1. AWA MRT 25As, complete, less crystals.
2. AWA MRT 25As, incomplete, less crystals.
3. Pye MVF 516s, complete, less crystals.
4. Pye MVF 516s, incomplete, less crystals.
5. TCA Type 1675s, complete, less crystals.
6. TCA Type 1675s, incomplete, less crystals.

Complete units are $10 each, incomplete $6 each. This price includes packing and rail freight to nearest railway station. Goods are for sale to members **ONLY**, for amateur use **ONLY** and are not for resale. When placing your order, please specify first, second and third preferences in case your first choice is not available. Send cheques made out to WIA Disposals with your order. The offer closes on Saturday, 27th June. If there are more orders than units, a ballot will be conducted. Any units left over will be auctioned on June 27th.

Details of three Clubs affiliated with the NSW Division:—

☆

CASTLE HILL RSL AMATEUR RADIO CLUB

C/- 16 Mills Road, Glenhaven 2154.

Meetings: 1st Mondays at Castle Hill RSL, Castle Street, Castle Hill.

Classes: Novice, Tuesdays, 7.30 p.m., at Castle Hill RSL Club.

President: R. Hudson VK2YVO/VKP; Secretary: C. MacKinnon; Publicity: I. O'Toole VK2ZIO, phone 680 2112 AH.

Club call sign: VK2DCB.

☆

TUMUT AND DISTRICT AMATEUR RADIO CLUB

93 Lockhart Street, Adelong 2729.

Meetings: Wednesdays, 7.30 p.m., Tumut High School.

Club is solely for tuition of persons wishing to learn radio theory and CW.

President: K. Dodd VK2DLZ; Vice-Presidents: R. Weeden VK2PN (phone (069) 47 1026 Bus.), V. Nugent VK2ALZ; Secretary: E. Dean.

Tumut Club will be hosting the 1981 SWARS Convention in October.

☆

BLUE MOUNTAINS AMATEUR RADIO CLUB

PO Box 54, Springwood 2777.

Net: Tuesdays at 8 p.m. on 3540 kHz using VK2AUX/NCM club call signs.

Meetings: 1st Mondays, 8 p.m., at club room, Springwood High School, Chapman Parade, Faulconbridge. (If public holiday 2nd Monday.)

Classes: Mondays except club meeting night, Springwood High School.

President: P. Willis VK2DAV; Vice-President: J. Dunn VK2VJD; Secretary: J. Belshaw VK2VPG; Other Committee: T. Ryeland VK2BRQ, E. Milne VK2ZRI, N. Walker VK2ZNH, D. St. Ruth VK2NQN.

Repeater: VHF VK2RBM channel 7050.

COMING EVENTS

6th, 7th, 8th June, Oxley Region Field Day at Port Macquarie. Write to PO Box 712, Port Macquarie, 2444, for a programme.

27th June (Saturday), 1 p.m., Divisional Auction at 14 Atchison Street, Crows Nest. Items for auction in before 12 noon.

Copy for inclusion in the VK2 Minibulletin must reach Box 123, St. Leonards 2065, two days before the end of the month prior to publication, e.g. by 28th June for August AR.

Susan Brown VK2BSB. ■

QRK5

A monthly transmission from the Victorian Division WIA.

A small disadvantage of this column is that it lags by 28 days, that is, I have to have my copy in to the Editor about a month before the magazine reaches you. Most times we can tolerate this, or else study the crystal ball more carefully. For example, as I write this there is still about a fortnight before the Annual General Meeting of the WIA Victorian Division. I've got a very good idea of WHO will be on your new Council — so have the other nine victims, but who will be what? . . . now there's a question.

I did say victims, and I mean it! Outwardly there may be some status in saying "I am a Councillor of WIA Vic. Division", but I can assure you that the the pleasure is often masked by the punishment. Let's face it — Councillors are fair game no matter what the organisation, and we amateurs are no exception to that game. Even the most apathetic amateur becomes a vociferous vigilante bent on his own trail of vengeance when he finds himself a Councillor to browbeat.

If one retains normal sensitivities then one term in office is enough and someone else can have the job. At the other extreme you can become so "shellbacked" and insensitive that you are of no use to the system. There are very special exceptions — dedicated men like Al Noble VK3BBM, Keith Scott VK3SS and John Adcock VK3ACA, who keep on coming back for more despite the knocks because they care for you and your hobby. There are many more like these, but faceless and nameless heroes — the Broadcast group, the Repeater group, and all the other quiet people who dedicate their time and skills to improving the lot of Amateur Radio. All of their work is voluntary, undoubtedly some advanced and insidious form of sadomasochism! This is the International Year of the Disabled — in line with that may I humbly suggest that within our fraternity YOU make it the Year of the Volunteer and **GIVE** them your **SUPPORT.**

CRYSTAL BALL DEPARTMENT

I rather suspect that the general meetings of Vic. Division might undergo a change of character for the better. Contrary to the outspoken belief of an ill-informed few, the WIA is not in competition with the various clubs — there's an entirely different purpose in one compared with the other, although **all** share a common aim to enhance the hobby. Nevertheless it is quite difficult to formulate a GM that doesn't appear to be competitive with the clubs. Whispers I have heard suggest that future monthly meetings will be far more interesting in both Social and Technical aspects, and it is hoped to see a better attendance from the Novice ranks. Watch this space and the Sunday broadcast for further details.

Apropos of the above: I never fail to be astounded at the range of ideas which one hears expressed over the air, many in the form of, "If I was . . ." or "Why don't they . . .". Many of these thoughts have a good base and are capable of good results. Too many of these ideas cease to exist, once spoken. On paper it doesn't take much effort to change "whinger" into "writer" (especially if you misspelt whinger to start with!). If you hear, or have, a good suggestion why not write it down and send it in to us — we'll sort the "wheat from the chaff" and will even correct your spelling mistakes. Come to think of it, the better ideas could even be presented in this column.

Is apathy one of the biggest threats to the amateur service in Australia?

The recent fight against Channels 0 and 5A and the submissions to the Committee on the Table of Frequency Allocations only received the positive action of a small percentage of amateurs. In both of the above cases there were even standard letters printed for your use — all you had to do was sign and send. Seems like even that was beyond the ability or interest of the average apathetic amateur.

The present anti-Woodpecker campaign needs the fullest support from all amateurs.

Many amateurs seem convinced that if anything is to be done about the Woodpecker, it will most probably be as a result of lobbying by CB operators. After all, CBers fought for legalization and won, then fought for retention of 27 MHz and won. In the 1980s the CBers seem to have the respect of the authoritories because of their tenacious approach to serious matters.

Who knows, in the years to come they could successfully lobby to annex our 10 metre band — and they'd win because we're so complacent that we'd sit back and do nothing as usual.

Isn't it about time for us to "bite the bullet" and get off our collective seats to do something to show our government, and anyone else, that we do care? Most of us earned our amateur licence the hard way. Are you now content to sit back and see your facilities and privileges whittled away, or prostituted? If not, **DO SOME THING NOW.** Get stuck into that Woodpecker campaign for starters.

Seems like we really stirred up a hornet's nest with that comment in the April issue about the use (misuse???) of phonetics on 2 metres FM. One call holder even suggested that I change my name as a result, but I **do** prefer Peter to Richard . . . thanks all the same. I will admit to three situations where phonetics are justified; marginal operating conditions where copy is poor: to overcome a speech defect, perhaps, and finally that situation where the call sign could be mistaken for another because of similarity in sound, e.g. suffixes such as DMN and BNM. Having allowed for these areas, where does that leave the rest of my critics? For the most part I suspect that many didn't read the item properly as I specified "on 2 metres FM under ideal communication and quality conditions". As a parting shot on the subject might I suggest that some of the "rapid but not readable" proponents of persistent phonetics should use their phonetics first, and then say the word or name clearly afterwards — this way we'll be able to work out what you said.

Back in the April issue you may also recall a letter from VK3KBA. One reader has been prompted to reply as follows:—

Dear Peter,

In April's issue of AR you published a letter from VK3KBA. Does this mean that the correspondence between VK3NWO and VK3ZFA will cease? Or that VK3KBA has become a multi (media) personality instead of a schizophrenic?

73. Ian VK3YIP.

While yet another reader came forth with:

Dear Sir,

I wish to complain about the excessive number of letters which have recently appeared in your columns regarding the Novice/Half-call controversy.

There is nothing wrong with half-calls; they are licensed amateur operators after all, but would you really like your sister to marry one?

There is a place in the system for the novice operator, too. True it hasn't been dug yet, but it is rumoured that the Institute is acquiring land in the country for that purpose.

At the risk of being hung, drawn and quartered, may I suggest that we close this quadrophonic subject at last.

Yours faithfully,

VK3XS.

Really Ian, what can I say? It's all been too much!

And on that note, dear readers, I'll wish you all 73 until next month.

Peter VK3JN. ■

QRM

THE MONTHLY BULLETIN FROM THE TASMANIAN DIVISION WIA

NORTHERN NOTES

Meeting held at Bourke Street Club Rooms, 31 persons in attendance, including three new members. During the evening an auction was held. VHF gear to be auctioned was purchased from TNT9, the local TV station. Total takings were $208.70 with a profit of $21.70, which was forwarded to the Handicapped Aid Programme.

A major canvassing for recruits to amateur radio is being conducted by VK7Z through all forms of media.

SOUTHERN NOTES

None received as yet. Perhaps there may still be a postal strike in progress?

NORTH WESTERN

Congratulations on your recent exposition of amateur radio's many facets and history through your local newspaper "The Advocate". At the last meeting the guest speaker, Mr. Matchpole of "The Advocate" newspaper, lectured on amateur radio and the media.

Jim VK7KOW has returned from New Zealand and I believe some experience with an old "Geyser" Romanticism perhaps!

Gentlemen, young and old, you are welcome on the Sewing Circle net each evening, 80m, (0700Z), 3590 LSB. Personally I have found many interesting discussions on this net regarding antennas, the G5RV being number one on the checklist.

VK7AE, world-wide DXer and international net controller, is now back in action, minus many amputated fingers, but the VFOs still turn. A new 8 a.m. to 5 p.m. curfew has been imposed, plus overtime. Welcome back Andre.

AOCP class instructions on entering and obtaining a certificate are now in progress at the King's Meadow High School, Launceston. Late students are welcome. Contact Brian VK7ZBY at 44 1466.

Until next month.

P.S.: Tasmanian Devils are plentiful, extinction of this rare species is forecast, so keep trying for those rare certificates and check all net frequencies weekly.

The Japanese amateur magazine "Mobile Ham" has recently exposed our efficient repeater system in Tasmania. Thanks for the report in March "Mobile Ham", page 157, De Ara VK1IBM. ■

BOOK REVIEWS

QSO JA NOW

An introductory text on Japanese Conversation for Radio Amateurs.

Congratulations to VK2AHB, Paul Rodenhuis, for compiling the material in the book, and to Westlakes Amateur Radio Club for making the results of Paul's studies available to Australian amateur radio operators.

Many people recoil from the suggestion that the Japanese language is a learnable language, yet students of the language soon appreciate the logic of the structure once the initial jaw-breaking pronunciation drills have been mastered.

Success in any foreign language would surely depend upon the ability to *speak* the language, and in order to speak the language an important component is confidence. A confidence gained by trying, making mistakes, modifying, then trying again.

There is no better way than being face to face with a teacher who can show by example the correct shaping of mouth for various sounds, and demonstrate the vital subtle differences of pronunciation which otherwise may be undetectable to the untrained ear.

If the book is to achieve the stated aim of encouraging communication between JA and English speaking amateurs, and if the communication is to be in part Japanese, then the hurdle of basic pronunciation must be overcome, probably by enrolling in a course of Japanese conversation.

Australian operators may be "spirit willing" but usually are "language lazy".

If the book does no more than create an interest in learning Japanese conversation, then it is worthwhile. It is an attempt to do something positive and constructive for those whose particular interest is in that facet of amateur radio.

VK3BWX ■

SHORT WAVE PROPAGATION HANDBOOK

Edited by George Jacobs W3ASK and Theodore J. Cohen N4XX.

Cowan Publishing Corp., 14 Vanderventu Avenue, Port Washington, NY 11050 USA.

This handbook discusses the principles of ionospheric propagation, sunspots and the sunspot cycle, sunspot cycle predictions, ionospheric forecasts and unusual HF and VHF ionospheric propagation. Quite useful information for the old and new amateur.

Jacobs and Cohen are well known for their contributions to CQ Magazine and quite a few years' study has gone into the preparation of this handbook. Their original articles on short term forecasting gave me an insight into the vagaries of ionosphere propagation.

For those interested in acquirign a working knowledge of this little known area of communication technique, then this handbook is a good start. Some of the information applies purely to the USA, but most of its contents have a universal application and it is a useful addition to your reference library.

Available from Magpubs, $7.50 plus postage.

VK3BYE ■

QSP

USE OF 52.050 MHz

Unfortunately several VK 6m operators still persist in using 52 050 (the national calling frequency) for non-DX contacts (i.e. across town) and effectively masking any international stations which now recognise this as the frequency to call on when looking towards VK. With recent conditions to interstate, it has been noted that several QSOs appear at the same time on 52 050 MHz. Best is to call CQ on 52.050 and advise that you are going to QSY to 52.075 or so, well away from .050.

— GARC Newsletter, Jan. '81 ■

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NOW AVAILABLE IN DUAL IMPEDANCE
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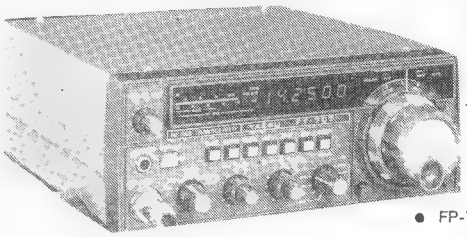

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- YM-36MIC $20
- FC-707 Ant. Tuner $139
- FP-707 AC supply $169

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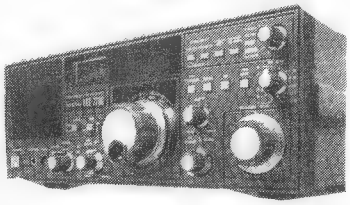

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VHF-UHF
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Eric Jamieson, VK5LP
Forreston, S.A. 5233

JUNE 1981

VHF/UHF BEACONS

Freq.	Call Sign	Location
50.005	H44HIR	Honiara
50.100	KH6EQI	Pearl Harbour
51.022	ZL1UHF	Auckland
51.999	YJ8PV	Vanuata
52.013	P29SIX	New Guinea
52.150	VK5KK	Arthurton
52.200	VK8VF	Darwin
52.250	ZL2VHM	Palmerston North
52.300	VK6RTV	Perth
52.320	VK6RTT	Carnarvon
52.330	VK3RGG	Geelong
52.350	VK6RTU	Kalgoorlie
52.370	VK7RST	Hobart
52.400	VK7RNT	Launceston
52.425	VK2RAB	Gunnedah
52.435	VK3RMV	Hamilton
52.440	VK4RTL	Townsville
52.450	VK2WI	Sydney
52.500	JA2IGY	Mie
52.510	ZL2MHF	Mt. Climie
52.800	VK6RTW	Albany
53.000	VK5VF	Mt. Lofty
144.010	VK2WI	Sydney
144.162	VK3RGI	Gippsland
144.400	VK4RTT	Mt. Mowbullan
144.475	VK1RTA	Canberra
144.500	VK6RTW	Albany
144.600	VK6RTT	Carnarvon
144.700	VK3RTG	Vermont
144.800	VK5VF	Mt. Lofty
144.900	VK7RTX	Carnarvon
145.000	VK6RTV	Perth
147.400	VK2RCW	Sydney
432.400	VK4RBB	Brisbane
432.450	VK3RMB	Mt. Bunningyong

No changes to the beacon list, but the Solomon Islands beacon on 50.005 has certainly been confirmed during April as being operational, having been heard on numerous occasions with signals at times over S9.

Beacon custodians are reminded of my requests over the past two months for information on your beacons please. So far nothing to hand.

SIX METRES

Well, the band certainly had everyone fooled! Following the rather poor showing during September/October last year, everyone hoped it would be in better shape during March/April 1981. March gave some hope for improvement, and early in April ZL TV was available from 2200Z onwards for at least a couple of hours most days, with signals good enough to provide pictures in colour most times, but without sound; the sound channel being higher in frequency the MUF often did not reach that high at that hour. The TV stations (often more than one) were watchable on at least 11 occasions here, and noted to be there on a further 5 occasions, and confirmed on the PRC10 receiver on 45.250.

6/4: JA7 and JA8 0500 to 0530Z. On 10/4 the magnetic flux was 273, A index 11, K index 2. 12/4 it was 271, 29 and 5. 13/4: 257, 55 and 8. 14/4: 257, 105, 3 with JA and H44 being worked. 15/4: 258, 19, 1 with KG6JDX 5 x 6 on 52.017 at 2336Z. Incidentally, on 14/4 Bob VK5ZRO, having little else to do, worked more than 40 JAs. On 15/4 noted VK2ZAY 1044Z. JA 1128 to 1402Z up to S8. VK1 worked KG6JDX, KG6DX.

AFRICA WORKED FROM VK5

After all these years at last 6 metre signals have been coming out of South Africa and reaching Australia. On 18/4/81 at 0712Z Gerry VK5AGM on 28.885 worked Dave ZS6DN on 50.108. Gerry's report to Dave was 529, and about S5 on 28885. Distance 6188 miles. SZ6DN was using a yagi antenna, he tried a rhombic with signals 519! This contact was followed by one with Dick VK5ARZ with similar reports. These contacts, although crossband, are as far as is known the first VK to ZS6 contacts using 6 metres.

Since those first contacts there have been quite a number of contacts from VK5 to ZS6 crossband. So far signals have not been good enough for propagation to extend to 52 MHz (once again showing just what we are losing by not being able to work on 50 MHz). Jack ZS6LN has been involved in some of the contacts and also the ZS2E beacon has been copied from Prince Edward Island (south-east of South Africa) on at least two occasions on 50.047. The ZS6 stations have been copied at the VK5LP QTH on four occasions (on tape for proof!). Apparently the path is not a good one to the west, or actually 225°, as the signals from South Africa have never ever been really strong — maybe the time of the year is not quite right, perhaps September/October may be better that way. Time can only prove if this is so.

BACK TO SIX METRES

After the South African episode and our congratulations to Gerry for being the first to make it, it seemed 28885 got very cluttered — there seemed to be signals from everywhere! Also on 18/4 noted VK2 were working into W during our morning hours. WA8KLH/KH6 on 50.1 was 5 x 9. He tried 52.005 but not a sign of signal. VK2 and VK4 working KH3 Johnson Island.

Talking to Ross VK4RO on 19/4 he mentioned he had two contacts on 11/4 to KH3AB on Johnson Island, at /752 and /922Z, also to WH3ABB same island and same rig! VK4AFC and VK4RR in Cairns believed also worked them. Tom W7KMA a regular worker into New Zealand around 2100Z.

Ross VK4RO further reported ZS2SS had been heard in Townsville during the week. The KH6 beacon is not always operating when contacts are made with Hawaii, possibly due to looking for Africa. ZLs have been working to USA almost daily throughout April.

On 19/4 flux 227, A 13, K5. Jack ZS6LN 519 at 0720Z 50.108. VK5RO worked crossband to ZS6LN at 0710Z. VK9NS and VK9NL heard weakly on backscatter at 2240Z. At 2300Z H44HIR beacon S9. H44RW on 50.108 S9+ at 2310Z. KG6DX working VK7. W6SMS Zip heard on 52.005 at 2330Z S6 by VK5ZPW working VK4PU and VK4ZNC. VK3AMQ 2349Z S2 on backscatter. Also VK1ZBJ and VK3AQR. VK3AQR worked AH8A on American Samoa at 2242Z 5 x 4, four other VK3s and VK2 also. W5UWB 5 x 9 to VK3AQR (but no sign on 52 MHz). Looks like something is brewing!

EASTER BRINGS A REWARD

Next morning it's up bright and early even if Easter Monday. It's still 19/4 by the Z day, but 20/4 local time. At 2236Z VK1FT and VK1VP noted working AH8A on 52.029 5 x 9. VK1FT reported OA4AWD was running a beacon on 50.095 and was looking for it. Runs 15 watts to a 6 element beam. At last VK6 can have a share. VK6KZ and VK6WD and many others work YJ8PD at 2354Z and H44PT at 2342Z. Signals from ZL1 and ZL2 reasonable copy in VK5 at 2300Z.

From that period onwards it was really on for VK5, the "Cinderella State" when it comes to exotic contacts. My own (VK5LP) log book takes up the story, but it was being repeated in various shacks throughout the VK5 area. At 2305Z KG6DX on 52.018 5 x 9 both ways. 2321Z H44PT 52.038 5 x 9. 2341Z VK3OT 5 x 9 backscatter. 2354Z VK1ZBJ and VK3AMQ 5 x 5 backscatter. 0044Z VK6KZ b/s 5 x 3. 0107Z split frequency contact with Lyall VS6BE Hong Kong 50.110 to 52.050 — what a split! Just as well I could use another receiver and separate 6 metre antenna! 0421Z JH8HWL 5 x 9, plus others. 0750Z KH6IIA 5 x 9 on 52.050. From 0752Z a string of VK4s, VK2DUX (formerly VK6OX), and a good contact with VK4XZ/M, who was mobile at Surfers Paradise and using his handbag. 0710Z tried with ZS6LN but no contact. That's the log book, but it's only part of the story.

The notebook now takes up the narrative. For the first time ever heard an FM station on 49.995 at S9 + 30 dB at 0056Z, playing music and talking in foreign language, apparently from Singapore area. At 0107Z VS6BE who also worked VK3OT at least, VK5ZPS, VK5RO and VK5AGM. VS6BE beacon heard by VK3AWY and VK6WD, and this still going strong at 0207Z. It disappeared for 7 minutes a minute later, then came back at 0215Z at S2 and was soon S9 again. 0358Z many JA areas at S9. At 0420Z Garry VK5ZK worked VS5DX in Brunei crossband 28 to 50 MHz, signals not strong. At 0650Z KH6EQI S5, and VK2DUX and VK4PU observed working W6HTH/KH6 and others. ZS6DN made an appearance on 50.105 at 0650Z. At 0740Z KH6IAA again 5 x 9 P29SIX beacon S3 same time.

I could keep going on like that. But to summarize, VK5 stations worked at some time, sometimes more than once, the following: **KG6, H44, VS6, JA, VS5, KH6, VK, ZL and heard on 50 MHz FO8DR, AH8A, VK9NL, VK9NS, ZS6LN, P29SIX, AH5 and KH3.** Other VK States were working or heard additionally N6CT, YJ8PD, and many contacts to W6 area. So on a count up it appears VK5 worked 8 countries, 7 of which were outside Australia, and heard another 7 at least on 50 MHz. The total count of countries into Australia for the Easter Monday seems to be at least 17, which would be rather outstanding by the standards of the Northern Hemisphere, let alone Australia. As far as can be gathered most if not all the 50 MHz hearings can be authenticated as several operators have reported in with their tallies, and times and call signs have been verified. So it was a really great day for Australia, again spoilt because so many promising signals were only heard on 50 MHz.

QUEENSLAND

John VK4ZJB called in to say that on 20/4 he and several other VK stations, including VK4PU, VK4ZMI, VK4WQ, etc., had done well by working to USA, e.g. 0829Z AH8A Samoa, 0845Z WA6DYA, 0920Z W6SMS 5 x 9 (also to VK2DUX), 0940Z K6KUQ 5 x 9, 0943Z W6AJ 5 x 6, 0948Z AA6S 5 x 7, and at 0330Z VK5WQ worked VS5DX 5 x 9. The previous day John had worked W6XJ and WA6KLH, and just for good measure on 18/4 contented himself working 35 JAs.

THE NEXT DAY

Of course the band still had some sting in it on the Tuesday after Easter Monday. At 2253Z KG6DX was 5 x 7 on 52.025, KG6JDX 5 x 6 on 52.065, the latter having been observed at S9 + on CW on 50.110 at 2218Z. At 2320Z H44HIR S9, from 2300Z onwards past 0000Z AH8A beacon was S9 on 50.104, and was worked by VK5ZBU and others at S8 and better — I couldn't hear him here, that's how selective things get at times! At 2336Z FO8DR beacon S1 on 50.096. At 2342Z JH60FX beacon or keyer S3 to S5 on 50.109. At 0730Z ZS6 again!

22/4: ZS6 observed working to KH6 during afternoon. VS6BE weak to somewhere during the morning. The sting has gone out of the band. On 23/4 Jim VK9NS Norfolk Island worked at 2330Z. At 2340Z FO8DR and W7KMA both observed on 52.010 for 5 minutes and rather weak; Dick VK5ARZ tried to work them. At 0014Z KG6DX keyer good. VS6BE keyer good signals between 0030 and 0145Z. On 24/4 around 0000Z VS5LH crossband 50 to 28 MHz, then at 0029Z peaking S9 on 52.020. Les runs 25 watts to a 6 element beam, and advises they have been granted a special dispensation to work on 6 metres until July. Half their luck! H44HIR and KG6DX beacons available from time to time. VK2 noted working XE1GE.

25/4: 0050Z KG6DX keyer S2 on 50.100. At 0112Z VS5DX S2 on 52.006 at 5 LP but very strong in Adelaide. At 0120Z VS5DX S8 on 50.100. 25/4: 2325Z H44PT observed working stations on 50.108 at 5 x 9, with H44HIR beacon S5 at same time. At 2330Z Peter moved up to 52.010 and worked several VK3s, including VK3AKK and VK3NM, plus VK5ZK, VKLP, etc. At 0120Z VS5DX heard 5 x 7 on 28885, but nothing heard at all on 50.105 and 52.020. At 2245Z W6XJ heard for a short burst on 50.100, a bit weak but workable if on 52. P29ZFS observed working a number of stations across the top end during the morning. To finish off the otherwise quiet day around 0715Z ZS6LN was worked crossband 50 to 28 by VK5ZK, VK5AGM and VK5RO, but again too weak here, thansk to that hill!

HEARD WHILE ON THE BAND

When conditions are so good one tends to spend a lot of time in front of the receiver and always being on the lookout for news. Here are a few bits which may interest you.

Firstly, congratulations to Steve VK3OT, who appears to have set a new Australian distance record for six metres with a contact to VP2VGR in the British Virgin Islands on 17/3/81, a distance of 16,620 km or 10,327 miles, using CW on 52.005 MHz at 2310Z. Tim VP2VGR used an Icom 551D to a 5 element beam and Steve 8 elements also to a 551D.

The Queensland record also tumbled when Phil VK4AYX worked DL3ZM/YV5 on 19/3/81 at 2220Z on CW and SSB, with reports up to S7. The great circle distance appears to be about 15,500 km or 9,600 miles. Good work Phil.

Tom VK2DDG at Byron Bay reported he too worked DL3ZM/YV5 in Caracas, Venezuela, on 18/3/81 for a possible NSW 6 metre record, distance being calculated to 15,223 km. Time 2218Z, first two-way on CW then same on SSB. That's a good effort, Tom, and congratulations. On 17/3 Tom reported working KG6JDX, then he heard the EL2FY beacon at 2340Z weakly, but able to identify. KH6 was also available at the time. During March signals had been heard from the Caribbean area. Byron Bay is about as far east as you can go in Australia so Tom has a good take-off and not much in the way looking out over the water.

On 18/3 Tom also worked JA, W6TYX at 2130Z, W6BYA, a WA7, then at 2148Z WA6BYA 5 x 3 first SS contact 52.002. Heard XE1GE, 6YRC beacon. On 21/3 heard TI2NA beacon 2355Z. On 10/4 copied ZS3SS whilst he was working KH6IAA. See what you can do with a good location!

Also heard on the air of possible beacons for Bundaberg on 52, 144 and 432 MHz. Noted also that Rohl VU2YK now has a TS600 and is likely to operate on 50.100. Has already heard VK8VF. Possibility of activity from 8Q7 from 25/4 to 2/5.

During the extensive Easter Monday openings, a look across the band from 38 to 50 MHz produced a mass of unusual signals, FM stations of all kinds, including military stations, paging systems, taxi services, TV services, music of various types, and this would change from hour to hour as conditions swung around to produce signals from another area. Quite fascinating.

SIX METRES IN NETHERLANDS

Peter VK5PS has written advising of a QSO with Charles PA0BDC in West Haarlem, Netherlands, recently. Charles is a keen VHF/UHF operator and asked that the following information be passed along to 6 metre operators here:

The authorities have approved 3 spot (crystal controlled) frequencies on 53.875, 53.925 and 53.975. The 53.875 spot is a beacon frequency for PA0RYS which operates with an ERP of 25 watts. The other two frequencies are for calling/working on CW and FM only. The approval is for an initial one year period, to 14th February, 1982.

From "The Propagator", April 1981

I guess that's a start, and certainly better than nothing, its main drawback is that the frequencies are almost a further 2 MHz higher than our 52 MHz band, and we have enough trouble now with a 2 MHz split from the 50 MHz end, let alone a 4 MHz split; I would think a USA antenna cut for 50 MHz would be a rather inefficient device if trying to operate 4 MHz higher. Thanks for writing Peter.

NEWS FROM KYOGLE

One of my most constant correspondents used to be Andy VK6OX from Carnarvon, and we all know how much he got out of six metres from there. All things seem to come to an end, now I don't get any news from Carnarvon, but the news has started to come in from Kyogle, nearly 2,000 miles further east and from the same correspondent Andy, this time sporting the call sign VK2DUX! He hasn't been there long, but six metres has been treating him rather well, thank you!

Andy reports quite a number of eastern coast stations have been enjoying contacts to the Caribbean, Central and North America. These include David VK2BA, Bob VK2ASZ, VK3AQR, VK3OT, VK4RO, VK4PU, VK4AYX, plus others.

Stations worked so far by Andy include W6XJ, KH6IAA, W6HTH/KH6, YJ8PD, KG6JDX and many JAs. Stations heard include ZF2DN, Cayman Is.; KP4AAN, K6FV, N6CT and numerous backscatter signals from VK2, 3 and 4, plus ZL.

MICROWAVES

From "Break-In" March 1981: *To stimulate more activity on the 10 and 24 GHz band, the RSGB has been sponsored by Microwave Associates Ltd. to introduce two new microwave awards. These are open to amateurs world-wide and are to be given to those achieving the first ever contacts exceeding 1000 km on 10 GHz and 250 km on 24 GHz. The only rules are that the participants must operate within the terms of their licence. Claims should be submitted to RSGB headquarters together with a written statement from a senior member of the participant's national society, confirming the contact has taken place. To put these awards into perspective, contacts approaching these distances have already been made, so they are certainly not far out of reach.*

On 10 GHz the most likely mode of propagation to yield success is superrefraction, as used for the current world record contact. It can be shown that the path loss on 10 GHz in a perfect superrefraction duct is 143 dB. A near minimum size of equipment to cope with this path loss would typically be a 5 mW transmitter, wideband FM in 250 kHz bandwidth, a 15 dB noise figure receiver and 0.3m dishes. UK experience suggests that ducts are usually less than perfect so something in larger equipment would normally be necessary.

Of the non-enhanced conditions necessary to cover this distance on 10 GHz, moonbounce offers a better chance than troposcatter. Even so, calculations show that narrow band techniques, transmitters with several tens of watts output, GaAs FETs, pre-amplifiers and dishes at least 3m in diameter would be needed — perhaps out of the question for our style of amateur budget.

Since reporting last month on the Italian 10 GHz distance record, some further information has come to hand. The 757 km record was established on 12/7/80 between I0SNY/7 in Brindisi, Southern Italy, and IW3EHQ/3 and I3SOY/3 at Col Viscenti in the Italian Alps. Reports indicate that the QSOs were made just after sunset (1921 and 1927 GMT), after the operators had waited the entire day. The enhanced propagation (over-water ducting) coincided with a deep fade in their 2 metre liaison channel and lasted for about 10 minutes. The path chosen was interesting in that one end was high altitude (1650m) and inland, but had a line-of-sight path at grazing incidence, to the sea. This presumably allowed the 10 GHz signal to fire into the northern end of the duct at sea level. The other end of the path was right at sea level, on the coast. The equipment used was not particularly exotic. Wideband FM Gunnplexers with output of 10 mW to 1m dishes were used at both ends. Signals were Q5 and S5-8.

It is a little surprising to find that most overseas practice still uses wideband techniques. Wideband refers to the IF bandwidth of the receiver, typically 200 kHz. While this used to be common with (and still is) klystron transmitters, the trend in this country (NZ) has been to use 30 MHz IFs with 50 kHz or narrower bandwidths for use with gunn devices.

NEW ZEALAND REPEATERS

Interesting to note that at last the New Zealand repeaters on 2 metres are to have a 600 kHz split in line with the Australian arrangement, and all must be changed to the new frequency and split by 28/2/1982 or go off the air! This arrangement will certainly assist contacts across the Tasman when conditions permit. I can still remember the problems in VK2 when the first large opening occurred into New Zealand and means had to be found to achieve a 700 kHz split!

TWO METRES

The poor old 2 metre band has certainly been neglected this month. I wonder what we missed there whilst everyone was congregated on six metres? I did notice, however, that on 9/4 a reasonable set of conditions prevailed across the Great Australian Bight to produce signals between Adelaide and Albany. VK6XY, VK6ZSP and VK6WG were all on 144.1 with signals to S9+, but VK5RO was not really content with this, he wanted to try 6 metres, and found he could work Aub VK6XY on 52.050 at the late hour of 1500Z! What an hour for Es to be around!

The only other startling event that I can recall was to hear my friend of many years standing, Al VK5EK who runs a bank at Willunga, operating on Channel 51 FM loud enough for me to hear him.

THE MELBOURNE SCENE

With all the activity around Australia which one hears about by various means, either on six metres, ten metres or the grape vine, it's nice to receive an informative letter detailing what has been happening elsewhere. Such a letter comes from Gil VK3AUI and I find it interesting to compare what has been worked from Melbourne with other places. Gil writes:

"16/3: JA1, 2, 3, 4 and 8 from 0852 to 0910Z. Then at 0937Z KH6IAA and at 1018Z W6HTH5KH6. Then more JAs, finishing around 1310Z. 17/3: Good opening to JA, all districts except JA8 from early afternoon until 1423Z. At one stage JAs could be heard dog-piling on YB1CS on 52.058, but we could not hear the YB. The JAs stood by whilst YB1CS tried for VKs, which says something for their operating manners! Not a peep, but many thanks to JA3EGE who contacted YB1CS and asked him to look and got the JA dog-pile to keep silent during the trial. This was around 1250-1300Z. VK3AZY worked a KG6 also.

20/3: WA4TNV/KL around 0300Z to VK3AUI, VK3NM, VK3AMK, VK3AQR, VK3AKK as far as is known. Frequency used 52.010. Some split frequency 52/50 as tried around 0100Z when Clay's keyer was strong on 50.110. Quiet until 28/3, when things started to hum to the Pacific and Caribbean. FO8DR and XE1GE both heard on 50 MHz around 2000Z, also snippets of VP2VGR. Then VP1A on 50.097 and ZF2DN on 50.110. Both were 599 and in for half an hour or more before 0000Z to 0030Z. Everyone trying to get them on the air to work them but they weren't on 28885 and no ISD numbers available! FO8DR was alerted but by the time he got on 52 MHz it was too late. (That 2 MHz difference once again.—5LP.) An 8P6 came up on 52 MHz but no luck. The signals from the Caribbean were so strong that when I first heard ZF2DN I thought a local had got the MHz switch in the wrong position!

Nothing until 6/4 when KG6DX was on at 0010Z. Some daytime openings between 29/3 and 6/4, but one has to work some of the time. Heard on 10 metres of one JA who worked over 150 Ws during one opening in November. 14/4 worked VK4ZJB and VK4KJL around 1047Z. JA in from 1130 to 1200Z, worked JA2, 4 and 9. 15/4: More JAs around 1050Z. On 16/4 at 2199Z to 2200Z heard H44PT working ZLs on 50.105, also snatches of YJ8PD. H44PT tried 52 MHz but signals not getting that high. At 2321Z on 50.109 whilst beaming NE heard a very brief burst of signal which sounded like the Woodpecker. Very watery with that fluttery modulated noise quality but it sounded like the Woodpecker. Maybe a harmonic and maybe by a very indirect path. Didn't stay long enough to be taped.

On 19/4 weak signals from W6XJ around 0200Z when VK4 working W6. At 2241Z worked AH8A and heard H44PT. At 0036Z (20/4 Z day) worked KG6DX, heard VS6BE but no contact. VK4 later, then JA. VK3 stations to work AH8A were VK3BOB, VK3BQS, VK3AQR and VK3AUI. VS6BE

worked by VK3AMQ, VK3NM, VK3AQR and possibly others. JA1, 2, 7 and 8 during evening. Quite a day. 21/4: 2250 to 2310Z (20/4) AH8A worked by many with signals to 5 x 9 on 52.011 with the P29SIX beacon in at the same time and on top of the other one. At 2220Z KG6JDX 559 on 50.111. H44HIR 50.005 569 at 2244Z to 2359Z; P29SIX 599 from 2238 to 2315Z right on top of AH8A contacts but luckily about 70° off in beam heading.

The level of spurious signals from CRUDO (Channel 0) varies from tolerable to terrible but never gets down to the level the old ATVO did, it is always worse. An intermittent arc on the station from switch on for several hours can be seen on picture and heard on 10, 6 and 2 metres, which is bad. Doubtful if it would have been possible to work the ZS6 even if available in Melbourne due to the residual S5 noise created by CRUDO! Such is life.❞

Thanks for writing Gil, at least for April it looks like VK5 might have had the cream of contacts for once!

GARC VHF FIELD WEEKEND

Results have come to hand for the 1980 National VHF Field Weekend held last December, and are as follows:—

Victoria: 1st VK3ATI, 5844 points; 2nd VK3ASQ, 5364; 3rd VK3BH, 4024 points.

South Australia: 1st VK5LP, 1245 points.
Tasmania: 1st VK7JG, 514 points.
Check log: VK3YRP.

A very nice letter accompanied the results table thanking me for my participation and prior publicity, sent by Mike VK3ASQ. Also advice that the Field Weekend will be conducted again this year, probably about the same time. Details later.

SIX METRE DX STANDINGS

Bill Tynan W3XO is seeking lists from VK stations on countries worked for inclusion in his QST 6 Metres Standings Box, and has sent me a prepared form for reporting. Copies of this can be obtained from me by sending a SASE or you may complete the information in tabulated form using the following headings: Your call sign, date of application, country, station worked, 6 metre 2-way/crossband 6 : 10, date worked, QSL received yes/no, propagation mode, e.g. F1, Es, tropo, EME, MS, aurora, etc., transmission mode, e.g. SSB, CW, AM, FM, any remarks, your latitude and longitude, and address.

Please mail this information to Bill Tynan W3XO, PO Box 117, Burtonsville, Maryland, 20730, USA, to reach him by 1st September, 1981. Alternatively, if you wish to save on cost of air mail to the US, send your list to me before 20th August, 1981, and I will send it across with one of my frequent communications I have with Bill. Whatever way you do, take up the challenge and at least let the rest of the world know what countries have been worked from Australia with the handicap of only 52 to 54 MHz and geographically so isolated. The next move is yours.

70 CM TO NEW ZEALAND

Further to the information in the April issue re the 70 cm opening to New Zealand on 26/1 and 27/1, it seems the contact between John ZL1BVA at Mt. Maunganui and Barry VK2AHE at Newcastle over a distance of 2268.5 km would represent an increase in the previous record held by ZL1TAB and VK2BQJ by 110.5 km. The distance is subject to confirmation. Frequency was 432.190 MHz and signals were very weak, around 1233Z on 26/1/81. This was made possible due to an inversion layer developing at 700m at 0000Z and four hours later at 0400Z the inversion was evident at longitude 160° East at a height of 800m with a gradient of between 3 and 5 degrees. Temperature and pressure were reported as stable.

BRAZIL BEACON

From "Break-In" comes news that LABRE, the IARU society in Brazil, has announced a new 6 metre beacon for propagation research purposes. Call sign PY2AA, output of 25 watts to a ground plane on 50.055 MHz. Reception reports to PY2AA Beacon Project, PO Box 22, Sao Paulo, Brazil.

ENDING

It's been a good month, enough DX to satisfy most. This month's thought is: "The rising cost of car insurance is only by accident."

73. The Voice in the Hills. ■

SPOTLIGHT ON SWLing

Robin Harwood VK7RH
5 Helen St., Launceston, Tasmania 7250

There has been quite a lot of discussion lately about "Woodpeckers" following the efforts of some individuals in Australia, supported by a magazine in Melbourne, that is putting pressure on Members of Parliament, Cabinet Ministers and the Embassy of one particular nation, for its curtailment. While I do not sanction the publication of confidential telephone numbers of certain diplomatic personnel, I do feel strongly that action needs to be taken to reduce or modify these world-wide backscatter pulse transmissions.

In my opinion, the correct way of bringing attention to the effects of these pulse signals that cover a wide spectrum of high frequency bands with severe disruption to broadcasting and telecommunication services, is through the WIA Intruder Watch. The Intruder Watch does pass its observations to the DOC, as well as liaise with other IW organizations overseas. They have been successful in removing and reporting several interlopers in exclusive amateur allocations, and are in the best position to document the disruption and effects of these backscatter pulse experiments.

However, these "Woodpeckers" are not confined to the Eastern Bloc nations, as I believe that some beam headings of these pulses are coming from North American locations, and possibly Western Europe. Australia has also been experimenting with backscatter or over the horizon radar over the past couple of years, but I don't know if the Jindalee Project, as it is known, is contributing to the proliferation of these annoying pulses.

Yet another theory behind these transmissions has been advanced. My attention was recently drawn to an article on the changing climatic conditions during 1980 with regard to drought, famines or floods increasing in many areas of the world. While the writer was concentrating on the religious significance to him of these events, he does infer that one Super Power has been experimenting with low frequency very high power transmissions to alter the earth's natural magnetic field, with the object of altering prevailing weather patterns. If such experimentation has been, or is still being carried out, there could be manipulation of, and alteration to, prevailing weather patterns. This could give a strategic advantage to a potential aggressor; the alteration of meteorological patterns to cause natural calamities could then disrupt the communications of an adversary, or cause social and economic chaos.

These experiments are said to be based on the work of Nicola Tesla, a Yugoslavian physicist who emigrated to the USA. He certainly did investigate the effects of electromagnetic energy on physical matter.

Whether or not these "Woodpecker" pulses are really experiments in the above, or just backscatter radar pulses, the effects of these emissions will have to be minimised in order that HF users can utilize their frequencies without disruption.

Have you also noticed that solar flares and auroral disturbances cause weather patterns to change? In late April we experienced several solar flares and auroral flutter on HF signals. It caused some disruption and dropouts on communication circuits. At the same time Britain experienced unseasonal weather, with heavy snowfalls and blizzards, something which has not occurred since meteorological records have been kept since the 17th century.

Here in the southern states, our autumn was delayed up to mid-April. When the solar activity commenced, the pattern altered from being mild and pleasant to cold with very strong gale force winds. So it does appear to correlate. Keeping a record of your local weather conditions, together with your on-air observations, could be an interesting exercise. One DXer I know of maintains that the 28 day Lunar cycle can also affect propagation.

I have received a letter from Mr. Llew Riley, of Chadstone (Vic.). He queried if there are stations operational between 24.89 to 24.99 MHz. Well, from my observations, I have heard only a few FSK or multichannel signals within this proposed new exclusive WARC allocation to the Amateur Service.

Llew also forwarded details of the Yaesu FRG 7700 S/W. I was unaware that there was another version of the Yaesu answer to the Kenwood R1000. This FRG 7700 S/W covers from 2 to 30 MHz, compared to 200 kHz to 30 MHz on the standard model. The price quoted was about $100 below that of the standard FRG 7700. In all other respects, the Yaesu FRG 7700 S/W seems to be identical with the standard model.

Recently I was fortunate in being able to test the Sony ICF 2001 Microprocessor controlled receiver. This push button model operates from 150 through to 29,999 kHz, and from 76 to 108 MHz on FM. I do not intend to go to any depth reviewing this handy little receiver, as several reviews have been published recently.

Basically, if you want to listen on a certain frequency, all you have to do is to punch in the required channel, much like a computer signal. For example, if I want to hear a station on 17795 kHz, all I need do is punch up 1-7-7-9-5 together with the red execute button and presto, there is the station on that channel! It couldn't be more simple, with no bands to change, no preselector to be peaked, or knobs to twiddle. It is only under 4 pounds in weight, and is 12¼ x 2¼ x 6¾ inches in size. (Portable enough to slip into a suitcase.)

It requires 4.5 volts DC and utilizes three "D" size batteries in the radio section, and the processor section requires 3 volts DC from two "AA" size batteries. However, there is an optional AC adaptor that is almost mandatory, for the radio draws a current consumption of 700 mA. The adaptor does not power the processor, which will last about a year with the two "AA" cells.

This model is ideal for the handicapped who have limited limb mobility, or are visually impaired. There are no protruding knobs, and it certainly does not take up any room. Its sensitivity is good, even with its own telescopic whip. Its selectivity is not as good as the more conventional receivers, such as the FRG-7 or the R1000, but its portability and cost compensate for this, making an ideal second receiver.

In next month's column we will be looking at the Volmet stations, together with their frequencies and times. Until then, the best of DXing and 73s! ■

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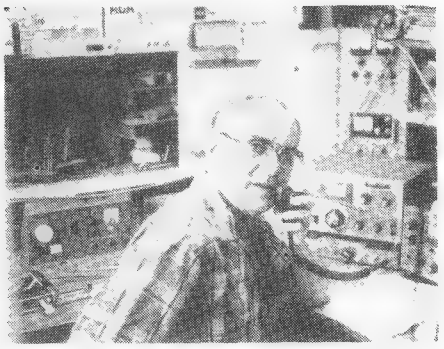

R. C. Arnold VK3ZBB

It was a pleasant surprise when Les VK3BKF brought Graham ZL3AAD and Peter ZE5JJ to see me recently. The three friends are EME fanatics and it was most interesting to hear accounts of the problems of working the "big satellite" without a transponder. Graham comes down to earth from time to time to work the OSCAR satellies and he is one of the very few overseas operators with whom I have had a contact via the Russian satellite RS1.

Amsat OSCAR 7 will be on its 30,000th orbit on June 6th and will be roughly overhead Melbourne at 10.11Z. At that time AO7 will have travelled some 1,477,500,000 kilometres since its launch, a quite outstanding performance and a great credit to all those dedicated amateurs involved in its construction and control.

Orbit predictions for June 1981:

JUNE 1981

	OSCAR 7			OSCAR 8		
Date	Orb. No.	Eqx Z	Eqx W	Orb. No.	Eqx Z	Eqx °W
1	29933	0007	80	16509	0056	75
6	29996	0048	91	16579	0120	81
8	30021	0042	89	16607	0129	83
15	30109	0117	98	16704	0019	66
22	30197	0152	107	16802	0052	74
29	30284	0031	87	16900	0125	83

Congratulations to Rod VK4ZRQ, who is now member No. 167 of the Mode J. Club.

OSCAR 8 has settled down and its temperature is now normal. However, operating is not straightforward and I have received several reports of its complete disappearance from time to time. This is possibly due to the attitude of the satellite as it passes northwards. Despite these reports I have not yet failed to locate the beacon on passes within sight of and to the south of Melbourne.

The photograph on this page is of a "QSL" card issued by ARRL to commemorate three years of operation of Amsat OSCAR 8. The card was received following submission of details of contacts through OSCAR 8 made during the week of this anniversary. The card is printed in red and it will be noticed that a USSR spacecraft stamp has been attached. The spacecraft are the Russian amateur satellites RS 1 and RS 2, launched in October 1978.

PHASE IIB NEWS

- Still cheduled for launch on 24th February 1981 on LO7.
- Construction on schedule despite problems of parts procurement.
- No further news on input and output frequencies.
- Students of the University of Berlin are working on the antennas under the supervision of DJ4JC.

As the launch of UOSAT, scheduled for 15th September 1981, is rapidly approaching, the following article, reprinted from "Radio Communication" by courtesy of RSGB, will bring you up to date.

UOSAT — THE AMSAT SCIENTIFIC AND EDUCATIONAL AMATEUR SPACECRAFT

By M. Sweeting, B.Sc., Ph.D., F.B.I.S., G3YJO

Department of Electronic Engineering, University of Surrey, Guildford, Surrey GU2 5XH

INTRODUCTION

The amateur satellite programme, born in 1961, has witnessed a total of 10 amateur spacecraft launched into earth orbit — of which five may be considered experimental (Phase 1) and five developmental (Phase 2) The first amateur spacecraft to be considered fully operational emerged from the AMSAT Phase 3 programme early last year; however, a failure of the European Ariane launch vehicle has delayed the realization of this operational stage until, probably, mid-1982.

Although the amateur satellite programme has reflected a substantial educational flavour, the emphasis during Phases 2 and 3 has been on producing amateur communications satellites primarily intended for increasing VHF and UHF communication range between amateur radio operators. Amateur radio is very much a self-learning and training activity even in its simplest manifestation and, as with other amateur offshoots of professional activities (such as amateur astronomy), has by its peculiar resources contributed much to the overall understanding of its field. In recent years amateur radio has perhaps developed stronger communication skills at the expense of experimental skills, largely due to the impact of relatively cheap, mass-produced, high-technology equipment, and has in turn limited its appeal away from the broader audience of amateur scientists, technicians and dabblers who could so enrich the fraternity.

In an attempt to redress this imbalance, AMSAT-UK is constructing an amateur scientific and educational spacecraft (UOSAT) specifically aimed at generating interest among a wide range of imaginative individuals in an important but now largely neglected aspect of amateur radio.

UOSAT is being constructed at the University of Surrey (UK) and is supported by AMSAT, RSGB, British industry and research organizations.

MISSION OBJECTIVES

The mission objectives may be summarized as follows:

1. To provide radio amateurs with a readily available tool for the study of the propagating medium through which they communicate from HF to microwave frequencies.
2. To stimulate a greater degree of interest in space sciences among schools, colleges and universities by active participation.
3. To broaden the scope of the amateur satellite programme and to encourage the interests of amateur scientists.
4. To establish an active body in the UK with the necessary resources to contribute flight hardware to the amateur satellite programme.
5. To study and evaluate the suitability of novel methods and new frequencies for use in subsequent amateur spacecraft.

SPACECRAFT SYSTEMS

The spacecraft systems may be considered as three components — service modules, experiment modules and the mechanical structure.

The service modules comprise all the functions fundamental to the basic operation of the spacecraft, such as the power sources, power conditioning, telemetry system, telecommand system, the general data beacon and the engineering data beacon.

POWER SOURCE

Four body-mounted solar array panels will each provide 27 WDC when fully illuminated. The average power available from the arrays per orbit will be approximately 17W DC, allowing for sun angle and eclipse.

BATTERY CHARGE REGULATOR AND POWER CONDITIONING MODULE

The BCR regulates the solar array power supplied to the 6Ah 14V DC nicad battery pack with an efficiency around 90 per cent. The PCM delivers regulated power supplies at +10V, —10V and +5V for the spacecraft's electronics systems with an overall efficiency of around 87 per cent.

The average power available to the spacecraft electronic systems per orbit is around 11.5W DC.

GENERAL DATA BEACON

A 450 mW beacon operating on 145.825 MHz will provide the prime interface from the spacecraft to the outside world. This beacon has been specifically designed to provide a healthy satellite-to-ground transmission link, enabling reliable reception by the simplest of amateur ground stations. The modulation form will be NBFM and, in order to minimize doppler tracking, data will be transmitted by AFSK. The trans-

missions will be compatible with standard, unmodified, amateur NBFM receivers, and only a small, fixed, cross-dipole antenna should suffice for all but the lowest-elevation orbits. A low-cost audio data demodulator will be required to interface with the printer/display, details of which will be published. The beacon will also be modulated by speech from the synthesized speech telemetry experiment and data from the earth-pointing camera.

The data sources available to his beacon are: 1,200 baud ASCII telemetry; 300 baud ASCII telemetry; 110 baud ASCII telemetry; 45.5 baud RTTY telemetry; 12/20 w.p.m. morse code telemetry; synthesized speech telemetry; spacecraft computer asynchronous interface; and earth imaging system data.

ENGINEERING DATA BEACON

A 400 mW beacon operating on 435.025 MHz is the primary spacecraft engineering data and high speed experimental data channel intended for advanced amateur ground stations, advanced scientific experimenters and the ground command station network. The modulation form will be biphase PSK with the following data sources available: 1,200 baud ASCII telemetry; 300 baud ASCII telemetry; 110 baud ASCII telemetry; 45.5 baud ASCII telemetry; spacecraft computer synchronous interface; spacecraft computer asynchronous interface; spacecraft computer output port; earth imaging system data; direct magnetometer data; and direct radiation counter data.

TELECOMMAND SYSTEM

Direct and positive control over the spacecraft's on-board systems is essential for efficient mission management and to minimize potential interference both within the spacecraft and to external services. The complexity of the space craft and its operating modes are such that manual real-time control alone would present an irksome chore for telecommand station operators, and necessitate a comprehensive network of stations for maintaining day-to-day schedules. Two modes of control over the spacecraft are therefore available:—

1. Direct, real-time control by the ground station network for: unscheduled command status changes; command status initialization; loading initial and modified soft ware into the on-board microcomputer; positive control of the spacecraft when in a partial failure mode; and simple command changes.
2. Indirect, stored-programme control of the spacecraft executed by an on-board microcomputer upon predetermined schedules or telemetry performance analysis for: day-to-day scheduled operation; spacecraft mode changes out of range of ground telecommand stations; and surveillance of on-board telemetry and executive control in event of spacecraft emergency.

Positive control over the spacecraft is assured by allowing over-riding precedence to control data emanating from direct ground telecommand. This includes total shut-down of the on-board microcomputer.

The spacecraft computer will employ the same command decoding and distribution system as the direct command mechanism and will behave as a local "ghost" telecommand station feeding scheduled commands into the command decoder according to a programmed "diary".

TELEMETRY SYSTEM

Knowledge of the status and performance of the spacecraft systems is similarly essential for efficient mission management and to ensure longevity of the spacecraft's operation. Sensors located around the spacecraft will monitor parameters such as temperature, voltage and current, which are then encoded and made available, in addition to various other processed data, to a downlink beacon via a telemetry module. The basic philosophy of the telemetry system is to provide both a comprehensive surveillance of the on-board systems for engineering purposes and a wide selection of data formats to cater for differing ground station facilities.

Telemetry will be available at the following data rates:

1,200 baud ASCII, 600 baud ASCII, 300 baud ASCII, 110 baud ASCII (asynchronops, seven-bit code); 45.5 baud RTTY (asynchronous, five-bit code); 12/20 w.p.m. CW (morse); synthesized voice.

Any combination pair may be transmitted by the two data beacons upon command.

The telemetry frame comprises 60 uniquely addressed analogue channels with 40 status flags and an identifier. The analogue channels have a range from 000 to 999 thus giving a maximum data resolution of 0.1 per cent. At the highest data rate (1,200 baud) each telemetry frame takes some 8s to be transmitted, which is somewhat less than the experimental instrument sample rate, thus instrument data is time-averaged and presented within the telemetry frame. (High time-resolution experimental data is available via the spacecraft computer for more detailed analysis.)

In line with the mission objectives, UOSAT will have the following experiment complement:

PROPAGATION STUDIES EXPERIMENTS

1. Phase referenced HF beacons on 7.001, 14.001, 21.001 and 28.001 MHz, enabling simple AOS observation to indicate ionospheric paths or more complex calculations yieding ionospheric electron densities.

2. A three-axis, wide-range, flux-gate magnetometer for the examination of the fine structure of the earth's magnetic field and any disturbances to it and their relationship to radio wave propagation. This data will be available on the general data beacon (145.9 MHz) and with higher resolution on the engineering data becon (435 MHz).

3. Two particle radiation detectors and counters (detecting particles with energies >20 keV and >60 keV) providing real-time information on solar activity and auroral events. This data will be available on the general data beacon (145.9 MHz) and with higher resolution on the engineering data beacon (435 MHz).

4. To microwave beacons on 2.4 and 10.47 GHz to study SHF propagation and the problems associated with inexpensive microwave satellite ground equipment.

EDUCATION EXPERIMENTS

1. An earth-pointing, solid-state, charge-coupled-device (CCD) camera will provide land and sea image data for transmission to simple and inexpensive ground stations via the general data beacon (146 MHz) using FM synchronous AFSK at 1,200 BPS — line synchronous. The image format will be presented as a 256 by 256 pixcel digital array with each pixcel having 16 possible digital grey levels. The entire image will be transmitted to the ground in around 3.5 min., stored in a solid-state memory and displayed on a domestic television. The ground image area will be approximately 500 by 500 km, providing a resolution of some 2 km on the earth's surface. The cost of the data demodulator, image memory and display electronics is around £100 and it is anticipated that modules and kits will be made commercially available.

Format:

It may be possible to use this visual display experiment to present processed telemetry and experimental data in a graphical format.

2. Telemetered data from the spacecraft and its experiments will be available at a variety of speeds and formats to cater for a wide range of ground-station complexity.

3. A limited repertoire of telemetry will also be available in synthesized speech for transmission on the general data beacon (145 MHz FM) intended for direct reception by the simplest standard NBFM equipment employing no more than a crossed dipole antenna.

The telemetry frame format will be as follows:

AMSAT	00000	00000	00000	00000	00000	00000	00000	00000	00000
AMSAT	00000	00000	00000	00000	00000	00000	00000	00000	00000
00000	01000	02000	03000	04000	05000	06000	07000	08000	09000
10000	11000	12000	13000	14000	15000	16000	17000	18000	19000
20000	21000	22000	23000	24000	25000	26000	27000	28000	29000
30000	31000	32000	33000	34000	35000	36000	37000	38000	39000
40000	41000	42000	43000	44000	45000	46000	47000	48000	49000
50000	51000	52000	53000	54000	55000	56000	57000	58000	59000

FUTURE SYSTEMS EXPERIMENTS

1. A combination of active and passive attitude control mechanisms based on gravity gradient stabilization and two-axis electromagnetic (magnetorquer) attitude adjustment will be evaluated. The spacecraft is designed to "fly" with the —Z facet (bottom) always pointing towards the geocentre. This facet will support the camera and the CHF, UHF and microwave antennas.

2. The 2.4 and 10.47 GHz beacons will be used to evaluate the usefulness of these frequencies for future amateur spacecraft in conjunction with relatively simple and inexpensive ground stations.

3. A powerful on-board CMOS microcomputer will have access to the S/C experiments, telemetry and command systems enabling: telemetry surveillance; command and status management; experimental data store and processing (e.g. image processing, data reduction); orbit data, operational schedules and general news dissemination; and attitude control.

The spacecraft computer is based around the RCA CMOS CDP 1802 microprocessor and has direct data links with the magnetometer and radiation detectors' experiments. This enables fast sampling of experimental data yielding fine time-resolution structure of these fields. The S/C computer also interfaces directly with the speech synthesizer experiment which can be fed with processed telemetry, experiment data or plain text. Analysis of navigation information from the magnometer (using it as a coarse sensor) and correlating with an existing model of the earth's magnetic field will allow closed-loop attitude control employing the two-axis mognetorquers.

The spacecraft computer will have access to the telecommand decoder input in parallel with, but on a secondary basis to, the direct ground command receiver. Control data emanating from ground command stations will have priority over locally generated control data at all times, and the S/C computer will have positive shut-down upon ground command in the event of computer malfunction. The S/C computer will be capable of generating the appropriate command repertoire locally as directed by software resident in its memory. This software is loaded from the ground by command stations using the telecommand uplink channel. The entire software library resident in the spacecraft computer can be modified or replaced during flight by ground telecommand stations, in order to accommodate changes in the mission profile and to allow for the rectification of possible software or hardware failures.

ORBIT

UOSAT is currently scheduled for launch by NASA into a sun-synchronous, polar, earth orbit in September 1981 as a secondary payload upon a Delta 2310 launch vehicle accompanying the Solar Mesosphere Explorer spacecraft. The programmed orbital elements are as follows:—

Altitude, 530 km; Period, 95 min.; Inclination, 97.5° sun-synchronous, 3 p.m. descending node.

The expected orbital life-time of the spacecraft at this altitude is around 4-5 years before re-entry. ■

QSP

SYDNEY-RIO YACHT RACE 1982

New been received that the Hornsby and District ARC and the Manly Warringah RC have undertaken to arrange for the radio amateur involvement concerning this yatch race in 1982. In connection with this event Barry White VK2AAB writes:—

"We wish to recruit two amateurs to take part in the race aboard two of the larger yachts in the fleet. The operators selected would need to be available from Mid-January to about the end of March.

Operators will need to hold an AOCP and be able to copy at least ten w.p.m. without error. As a member of the crew they will be expected to contribute to the chew expenses for food, etc., of about $10 per day. They should be in good health and hold a valid passport.

The race will take about forty days for the slowest yachts and on arrival in Rio the operators will be able to live on board until their return. It is anticipated that two air tickets will be available for return to Sydney.

Ocean racing or cruising experience would be an advantage but is not necessary. Operators interested in taking part should write in the first instance to Hornsby and District Amateur Radio Club, Box 362, PO Hornsby, NSW 2007."

All previous responses received by the Executive office have been forwarded to VK2AAB. ■

NEW PREFIXES

The call sign series J8A-J8Z has been allocated by the ITU to Saint Vincent and the Grenadines according to the April 1981 issue of Radio Communication. ■

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IYDP NATURAL HISTORY AWARD

This prestigious innovative Natural History Award is sponsored by the Radio Amateurs Group of the Victorian Disabled Citizens Association, The Jaycees of Victoria. It promotes **"Amateur Radio for the Disabled" (International Year of the Disabled Person, 1981)** and features fauna and flora in full colour prints. The six colour prints measure 7 cm x 5.5 cm and are mounted on each award with a place for endorsement seals. Green, 70 points; blue, 70 points; red 75 points; silver 90 points; gold, 110 points; **Total 500 points.**

The award will be issued to all applicants including SWLs attaining **the first plateau of 70 points.** There is no time limit. Basic award donation, $A4.00. Application for the additional points endorsement seals will be issued at no cost to the applicants. Self addressed envelope, size 14.5 cm x 9 cm is required for endorsement seals. Each award will be individually numbered and signed by the award custodian and president of VDCA.

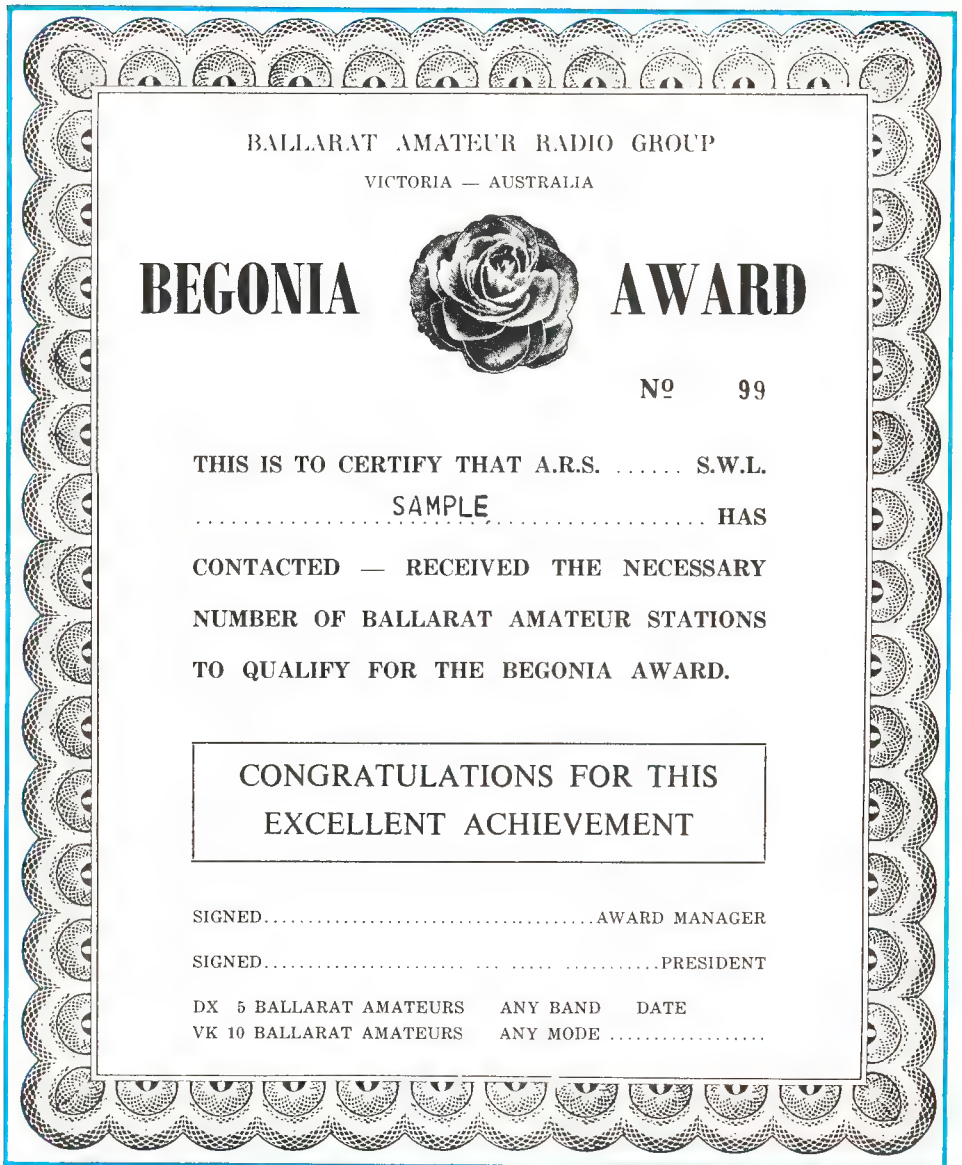
RULES

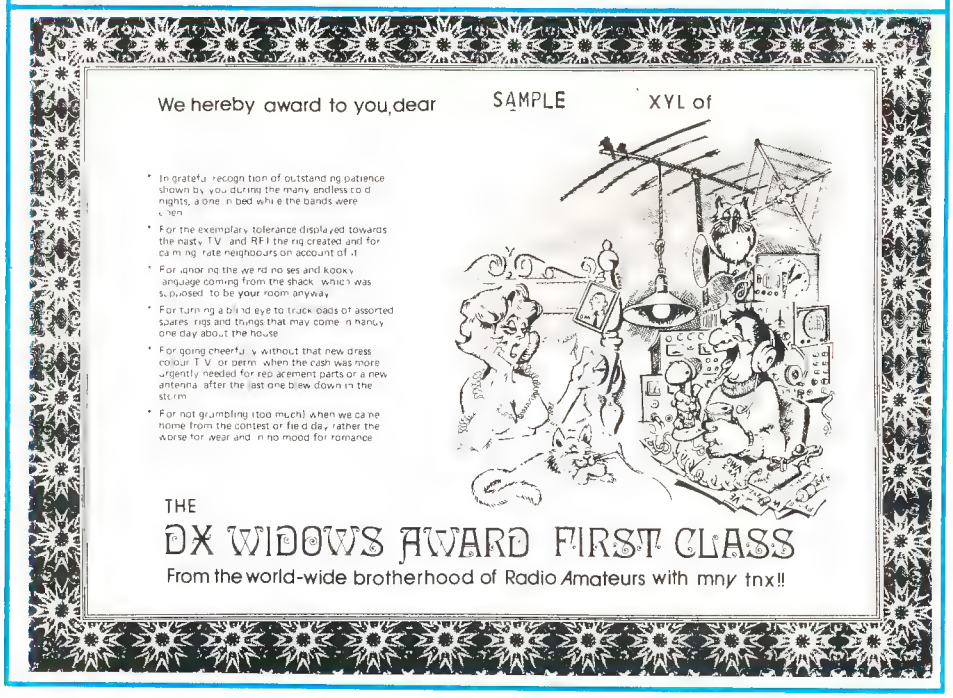
Verification/log entries must be clearly legible on a check log, counter signed by two licensed amateurs known to he applicant. QSL cards should not be sent to the awards custodian. Any legal type of emission may be used providing communication is established on or after January 1st, 1981. All bands from 160 to 144 MHz can be used. Cross band and the **VK3APU Monday/Thursday night 3575 MHz net** contacts will not be allowed.

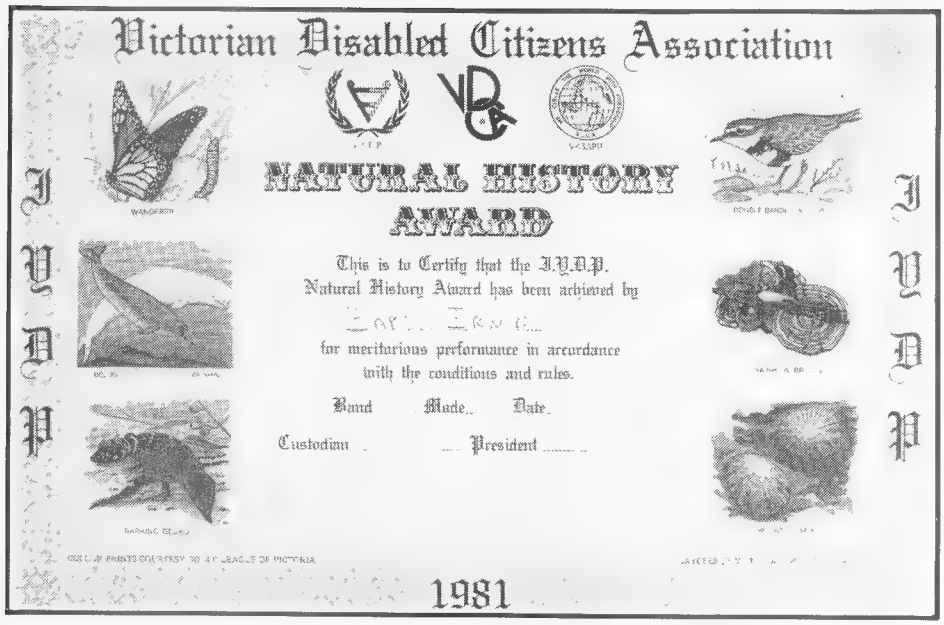
Logs must include the following details: applicant's name and address, call sign, SWL's registration number if applicable, date, time GMT, type of emission, frequency, signal report, band(s) for which application is made and whether endorsement seals are involved. Applicant's location at the time of each contact if portable/mobile operation is involved. Log entries should indicate whether you are a physically disabled amateur, SWL, or a volunteer/supporter amateur (able bodied). SWL applications will be accepted and the IYDP Natural History Award issued with appropriate endorsement seals as applicable, when all conditions listed are complied with. SWLs, whether registered or not must include both call signs and names of licensed amateurs in submission of log extract to claim this award.

ALL FUNDS generated by this innovative award will be used to assist the visually disabled and the wheel chair mobiler amateur and SWL.

Address all correspondence to the Awards Custodian, 1 Balfour Street, Doncaster, 3108, Victoria, Australia.







Points scoring system

Almost all log entries after 1st January 1981 will count towards this award in accordance with the following formulae:

1. Contacts with your own VK call area = 1 point.
2. Contacts with other VK call areas 2 points.
3. All DX contacts 3 points.

The only exceptions to this rule are: All DX contacts made by VK0 operators count as 4 points and **no VK to VK amateur station shall be worked more than once on any band.**

VK3APU must be worked for award qualification — no points score.

VK disabled amateur to any DX disabled amateur = 10 points.

VK disabled amateur to any VK disabled amateur 5 points.

For SWLs, any VK to VK QSO logged counts as 1 point and VK to DX = 3 points.

Description

This award will be a most impressive addition to the shack wall. It is printed in thre colours on buff board. The Victorian Disabled Citizens Association and logos are in blue and the award mauve and most other printing in red. The surround is light brown.

The basic award will contain six multi-coloured stickers. There are several stickers available (approx. 180) featuring Australian flora and fauna, too numerous to mention in this column. With the combination of stickers available, no two awards will be the same. Applicants can then apply progressively for the coloured endorsement seals as they accumulate more points. This award measures 350 x 240 mm.

N.B.: **A date to remember — The Victorian Disabled Citizens Association Appeal on 19th and 20th July, 1981.**

BEGONIA AWARD

This award is available from the Ballarat Amateur Radio Group (BARG) in Victoria for working amateur stations located in Ballarat.

VKs must work 10 Ballarat amateurs.

DX stations must work 5 Ballarat amateurs.

Any band, any mode, will qualify.

The cost of this award is $2.00 Aust. or equivalent and log details only are required.

The award is printed on white matt card in three colours, the flower is in red, all printing in dark blue and surround in tan; measures 250 x 300 mm.

DX WIDOWS AWARD

This is a rather novel and innovative certificate which may also be obtained from the Ballarat Amateur Radio Group. You do not require any QSOs for this award, just your XYL's name and your call sign! The cost of this certificate is $2.00 Aust. or equivalent.

I must admit that my XYL, Joan, has cheerfully suffered the traumas of being a DX widow at various times and she wholeheartedly agrees with the captions included on this certificate, although cans of beer in this ham shack (and in VK5!) are somewhat of a luxury! I am sure your XYL would appreciate the thoughts contained in this certificate and I commend it as an extra when applying for your Begonia Award.

However, with the enourmous increase in the numbers of licensed lady operators over the past two or three years, I often wonder how many DX widowers there are out there? (Sorry, ladies, I could not resist it).

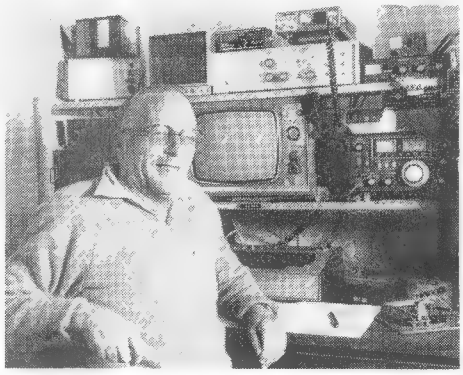
This award measures 295 x 225 mm, printed in red and black on yellow card. You may not be able to read the printing on the accompanying photo reduction. If not, I suggest you send $2.00 to Maurie Batt for a copy.

Both Ballarat awards may be obtained from Maurie Batt, RSD Rokewood Junction, Vic. 3351 or BARG, PO Box 216E, Ballarat East, Vic. 3350, Australia.

Good Hunting. ■

CONTESTS

Wally Watkins VK2DEW
Box 1065, Orange 2800



JUNE

19/21	SMIRK QSO Party	CQ 6/81
20/21	All Asian Phone Contest	FCM & CQ 6/81

JULY

1	Canada Contest	CQ 6/81
4/5	Venezuelan SSB Contest	CQ 6/81
11/12	IARU Radiosport Contest	
17/23	SWOT QSO Party	
18/19	Colombian Contest	
18/19	SEANET Contest CW	
25/26	Venezuelan CW Contest	
25/27	County Hunters CW Contest	

AUGUST

15/16	SEANET Phone Contest
15/16	Remembrance Day Contest

Exchanges: All Asian — OM, RS(T) plus age; YL, RS(T) plus 00. SMIRK — Call, State, province or country and SMIRK number.

The "Oops I Really Goofed It" department.

The gremlins got in again in the results of the Australian Novice Contest. The winner was in fact **Stu Bazley VK2NMB.** My apologies.

Results of the 1980 National VHF Field Weekend conducted by the Geelong Amateur Radio Club during the first weekend of the last Ross Hull Contest:—

Victoria: 1st VK3ATI, 5844 points; 2nd VK3ASQ, 5364 points; 3rd VK3BH, 4024 points:

South Australia: 1st VK5LP, 1245 points.

Tasmania: 1st VK7JG, 514 points.

Check Log: VK3YRP. ■

QSP

900 MHz

ARRL President is setting up an ad-hoc committee of amateurs knowledgeable in the 900 MHz region of the specrum to develop a detailed proposal and supporting rationale for the allocation of a new USA amateur band at 902-928 MHz.—March 1981 QST. ■

MORSE

The editorial in Ham Radio, Feb. '81 foreshadows Ham Radio's interest in arranging a contest in the USA for the world high-speed CW championship. The current record is Ted McElroy, ex W1JYN, who copied Morse code at a speed of 75.2 words per minute on 2nd July, 1939. ■

YOU and DX

G. (Nick) Nichols VK6XI
6 Briar Place, Ferndale, WA 6155.

VKland, Australia, a place regarded by many amateurs world-wide as the ultimate Utopia, a place they turn their beams toward. A chance for a bit of peace and quiet away from the kilowatts and bad-mannered dog piles, a guarantee of a good QSO, a friendly chat, a smile, a bit of warmth.

Really does sound idyllic doesn't it? Such a pity that of recent times it's just not true. What has come over this amateur community of ours? Have we lost all sense of good manners? Quite simply it is my belief the answer is YES.

My congratulations to the operator of a recent DXpedition for tearing strips off a VK6 using tail-ending tactics that really had to be heard to be believed. I sincerly hope that whilst he may have worked you he may have been absent-minded enough to omit you from the log, and whilst I may clearly have pointed the finger, many others were just as bad throughout VK. Certainly many are deaf or can't count. There may be a few Kiwis in this country but our prefix is VK not ZL, we aren't in the USA either, but to the VKs who got on a list by absent-mindedly omitting the first letter of their call (now don't tell me you all had slow VOX relays that day), I am tempted to say you win the raspberry of the year award — but even that would be too good for you.

No I haven't finished yet — in fact I'm only just getting started. For the novices in particular (but by no means limited to them), when a DX operator comes back with:—your call, 59 QSL, he is instantly dictating to you the way he expects you to reply, he certainly doesn't care a hoot if your name is Steven (spelt with a ph), that you live in Widgiemooltha some 897 kilometres (that's 557 miles), seven yards and 81 millimetres from Toonwatsitsname, are running 27.75 watts PEP from a super-duper block box into a three element tri-band lump of soggy sphagetti at 70 feet (that's 21.782 metres) above the ground! HAVE I MADE MY POINT? I SERIOUSLY DOUBT IT. Dozens upon dozens of times the DX stations were asked to repeat their calls — what are you doing in a pile up in the first place, if you're oblivious of whom you're calling? Don't bother to answer that; you're obviously on some sort of ego trip.

And what about the FH8 on 10 metres? Having apparently completed some work on his antenna installation he went and pointed it at VK, looking for some comparison reports. He got them all right. A screaming hoard of VKs all yelling 59 QSL. Would you blame him if he didn't point this way again?

Even nets run by VKs are much the same. Just how many net co-ordinators do we need on any one net? Certainly not 6 or 7 all doubling, waffling, repeating and generally messing it up. Oh, and while on the subject, if playing guessing games with your report from the DX station via a co-ordinator who carefully ensures that, after three or four tries (with a geneous amount of prompting) you get it correct is "DXing" then I for one intend taking up a new hobby! If you can't get your report on the first or second attempt (allowing for deliberate QRM) without ANYONE'S help have the intestinal fortitude NOT to log the contact. You may not improve your country's count but at least what you have logged was not via the "quiz game method".

FACT AND FICTION

3 V activity has been rumoured for some months, a group of JA ops are said to be involved. Nothing heard on the bands yet so perhaps next month.

Kermadec — Dave K6LPL has shelved this one due to lack of finance.

KP4/D — many rumours on this one — some saying it will go off immediately a helicopter is available, whilst others state no licence has been granted. We will just have to wait and see.

TY — Benin to receive plenty of attention during late May/June in follow-up to the reactivation by TYA11 (funny call but it is legal).

5V7HL has been active but failure of a rotor control box has limited his beam headings severely; a replacement should have arrived by now which should save Reverend Ted the chore of ladder climbing. He's promised to look toward VK more often.

ON THE BANDS

10 metres

No doubt conditions will have severely deteriorated but for those of you who gave this one some attention over the last month the pickings to be had were exceptional. On Phone **VP8QG, J73PP, CP6EL, ZP5RG, 8R1J, HR1MZM, CE0AE, FY7AQ, FP0FSZ, 8P6PF, HK0FBF, HT7JML, HR3JJR, WH3AAB, AD0S/KH5K, 9M WB, VS5DG, DJ6SI/6W8, C5ADU/6W8, 5V7HL, 3C1MM, 9J2BO, A9XF, 7X2LS, 5X5FS??, FM8OM, 5N9GM, T32AB (Line Island), 9X5PP, TL8CN, 9GiAP, 5H3AA, 7Z2AP, C31UI, OY9R,** plus many other rare and semi-rare countries far too numerous to list. On CW things were pretty bright also, **CX4BA, FO8EW, T30AT, 4S7MX, VP8PK, JA8AQN/JD1** and elusive Zone 40 was represented by **TF3JO.**

15 Metres

The only time I got down this far was to drag things up to 10, however for the novice I understand on Phone **A22AA, VK0AJ, ZK1CG, YS9RVE, GD3LSF, 6W8AR, 7P8AC and 4N7NS** were available, whilst on CW a whole mess of activity kept the brass pounders happy with **EA6GG, E19Q, FG0FOO/FS, HI8JVF, T30AT, VP2EV, 9H1CH** and **Nara 9M2LN** were in demand.

20 Metres

A CW report only this month (never could see the point of battling the kilowatts when the higher bands are wide open) — **CN8AT, CX6CW, FB8YH, FO8GM, OD5LX, HZ1HZ, TF3NA, ZB2EO, FM0FOL and TL8RC** were some of the more notable active stations.

40 Metres

On Phone if and when you could get through the northern QRM (not to mention the VKs rag-chewing in the prime DX window) **GW3AX, FK8CR, A35JE, ZP5AL and HR1RMG** were loud enough to hear through the "junk", whilst on CW **KH3AB, OA8CP, XT2AW, VP9BK and VP2EV** were much easier to hear but very much in demand.

80 Metres

On Phone, though openings were infrequent, **OA4AWD, ZS6BNS and JAs** were heard but CW remained as dead as a post.

My sincere thanks for the sudden and quite unexpected upsurge in contributions which enabled me to comment on the bands below 28 MHz, SWLs **Eric L3-0042, Maurie L3-13062** with written and on-air reports from VKs **6NLZ, 2DPI, 3NSR, 3VYP, 3NXX, 3VHA, 3AWY, 2VAB and 3AKK.**

QSL INFORMATION

C5ADS — via DL1LD.
7P8AC — via PO Box 829, Maseru.
OY9R — via K2IJL.
4U1UN — via W2MZV.
9M6MH — via PO Box 678, Sabah.
9J2BO — via W6ORD.
HR1MZM — via PO Box 761, Tegucigalpa, Honduras.
J5AG — via SM3CXS.
9G1AP — via I0LCJ.
3C1MM — via EA1QF.
VK0AJ — via VK3AWY.
6W8AR — via DJ3AS.
8P6PF — via VE3IVE.
8Q7BF — via JA1ETE.
7Z2AP — via I8YCP.
WH3AAB — via Box 4, Johnston Island, APO, San Francisco 96305.
9M6WB — via PO Box 70, Tawau, Sabah, Malaysia.
HP1XOJ — via WB3KGY.
KG4KK — via N6AWD.
VP8PP — via PO Box 224, Stanely.
VP8WA — via PO Box 38, Stanely.
VP5TCI — via PO Box 78, Grand Turk.
FP0FSZ — via VO1FB.
9X5PP — via PO Box 863, Kigali.
TU2IJ — via PO Box 520, Abidjan.
VP2MGQ — via N4MO.
OH3XT/OH0 — via Home Call.
ZP5PT — via W3HNK.
HC8GI — via W3HNK.
J28CC — via F6FGN.
TI9FAG — via T12VVR.
VP2MEA — via KP2A Home Call or NE4R/KB4QB.
DL2VK/ST3 — via DF9FM.
VP2VGR — via VE1ASJ.
CE0AE — via WA3HUP.
W4PRO/CE0 — via Home Call.
EA6GJ — via Box 2, Esporlas.
FB8YH — via F3KH.
KP4KK/DU2 — via WA3HUP.

FG0GDI/FS — via F6AXX.
EN3D — via UK3DAU.
FO8HA — via Box 11193, Mahina, Tahiti.
HI8JVF — via Box 1157, Santo Domingo, Dominican Republic.
H44DX — via Box 332, Guadalcanal, Solomon Islands.
H44M — via K1MM.
H44TA — via JJ1KEK.
JA8AQN/JD1 — via JA8JL.
KH3AB — via KB7MO.
OA8CP — via N4CQ.
OH0XZ/OJ0 — via OH2KI.
TL8RC — via F6EZV.
T30AC — via WB6FBN.
VP2EV — via K8ND.
VP2MFC — via K1ZZ.
VP8PK — via JA0BFZ.
VU2DX — via Box 725, Madras, India.
VU2UDO — via DJ3YX.
YC1BZ — via JA0YJA.
YZ9CRM — via YU2HDE.
ZS2CW — via W6RIA. ■

THE SEAVIEW EXPEDITION, 1981

From Len VK3LP

In 1492 Columbus sailed the ocean blue. That was a jingle learned at school and from that early voyage, someone or some group have taken up the challenge of the sea.

This time it is a foursome, Alphonso Oerlemans, 42 years, Marguerita Arens, 25, from Belgium, Bjorn Haltet, 25, and Frank Robinson, 24, from Norway, in a STEAM BOILER.

The vessel has taken three years to build. Dimensions are 45 ft. long, 7 ft. diameter with four compartments. Decking 4 ft. square with mast and 3 sails. A reversed conning tower extends 11 ft. below and acts as an observatory for filming marine life and as a stabiliser. Weight: 11 tons.

Phons ON4AXA, the skipper, uses a TS180 to a ground plane antenna. Charges the batteries by trailing a generator, allowing progress and sea currents to turn the propeller. Hence his operating time is limited each second day at 2100Z on 14.245 MHz.

THE JOURNEY

Out of Antwerp to Falmouth for extra fitting — over to Lisbon — across to the Canary Islands — down to Cape Verde Island heading for Fort Lauderdale, Florida via Barbados Rate of progress approximately 60 miles a day. Should be in American waters by the end of April.

Signals have been fairly good 53-57 since my first contact (31-1-81), Merv VK5AMY also keeps the sked.

QSL through Lolina Gonzales EA8XL, Box 123, Las Palmas, Grand Canaria, C.I.

In conclusion, Phons is not a newcomer to Atlantic crossing. He sailed from Morocco to Trinidad in 1976 on a raft using oil drums, naming it the LAST GENERATION. The Seaview may be classed as comfy by comparison. ■

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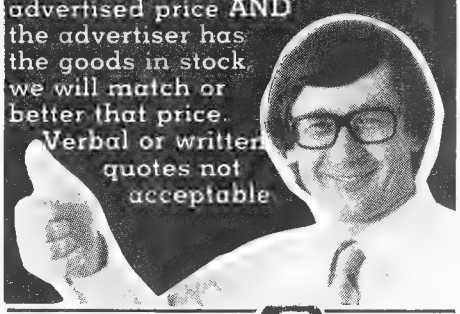

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YAESU

Model	FT680R	FT480R	FT780R
Band	50-54mHz	144-148mHz	430-440mHz
SSB Power input	20 watts	30 watts	30 watts
CW, FM Power input	20 watts	30 watts	30 watts
AM Power input	8 watts	—	—
TX at 13.8v	3 Amps	3 Amps	4 Amps

All models feature:

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Stan Roberts
VK3BSR

NOVICE NOTES

Edited by Ron Cook VK3AFW

PEAK ENVELOPE POWER — WHAT IS IT?
This article discusses that much misunderstood quantity Peak Envelope Power. Read this carefully and be one of the few to know what PEP means.

Peak Envelope Power (PEP) measurements are necessary for all amateurs as most transmitters are now limited by the Department of Communication's Regulations in terms of PEP output. Before we measure anything we ought to know clearly just what that thing is. Many among us, as the cartoon shows, do not understand PEP.

Good evening. Our new energy policy will include a Bill to change the charges for electricity tariffs onto a PEP basis, thus doubling the revenue now earned.

Consider a simple CW transmitter running, say, 10 watts DC input to the final amplifier. Now assume that it is an efficient amplifier and produces 7 watts RMS when connected to a 50 ohm resistive load. The load will heat up and will get just as hot with the 7 watts of RF as with 7 watts of DC. This is of course to be expected as by definition 1 watt RMS of RF produces exactly as much heat as 1 watt of DC.

Any RF power meter calibrated for RMS can be used to measure the output power of our CW transmitter if the key can be held down long enough for a steady reading to be obtained. It should read 7 watts for our example.

An oscilloscope (CRO) connected across the load would show a picture similar to the signal depicted in Fig. 1. We could measure the peak voltage, Vp, from the CRO and would expect to read 26.46 volts. For a sine wave signal without distortion (no harmonics) the RMS voltage, V, could be calculated from the formulae V = 0.7071 Vp = 18.71 volts. As power = V^2/R we would then find the power was 7.0 watts.

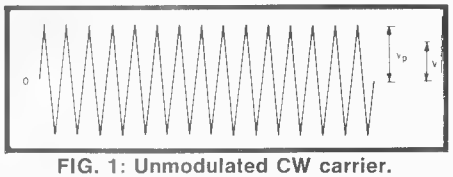

FIG. 1: Unmodulated CW carrier.
For 7 watts rms into 50.0 ohms, (R = 50.0)

peak voltage, Vp		26.46 volts
rms voltage, V	=	0.7071 x Vp
	=	18.71 volts
power	=	V^2/R

Fig. 2 shows the envelope or outline of the peaks of the RF signal for an unmodulated CW carrier. The carrier has a power of 7 watts and as it is always at the peak it is easy to see that the envelope represents a power of 7 watts. The PEP output is in fact 7 watts. The peak and average powers are equal. Note that power is defined as the rate at which energy (e.g. heat) is produced. We are therefore concerned with RMS quantities, not some airy-fairy thing invented by audio amplifier salesmen.

FIG. 2: Envelope of unmodulated CW carrier. The envelope is the outline joining the peaks of each RF cycle. If V = 18.71 volts, PEP 7 watts.

Suppose we now key the transmitter and send a series of "As", with a space equal in duration to a dash as illustrated in Figs. 3 and 4. If we assume that the transmitter and its power supply operate in the same manner when the key is down for a short time as when it is down for several seconds (see later), then the RMS power during dots and dashes is still 7 watts. In between it is 0. The power during the peak of the envelope is 7 watts PEP out as Vp is the same as before. But, because the key is closed for half the time, an ordinary power meter would read only half the previous value, namely 3.5 watts. We have now discovered that for keyed CW signals the average power = PEP × duty cycle fatcor. Using our oscilloscope we can measure Vp as before and calculate PEP as before.

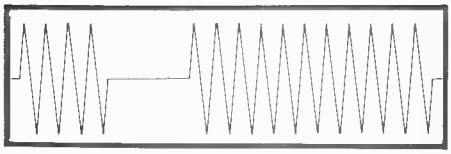

FIG. 3: Keyed CW carrier, morse letter 'A'.

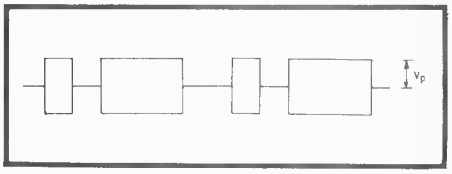

FIG. 4: Envelope of keyer CW carrier, part of morse sequence 'AAAA - - - A'. Peak envelope power = 7 watts rms. Average rms power = 3.5 watts if there is a space equal to a dash between successive A's.

Now, if our amplifier is a linear amplifier, class B operation perhaps, then we could apply an SSB signal. The envelope of a two-tone signal is shown in Fig. 5. The two tones may have any frequency provided they are not harmonically related (refer to the regulations). Suppose we increase the level of the two tones equally to the point just before clipping of the peaks of the envelope occurs. If our oscilloscope shows Vp = 26.46 volts we again have 7 watts PEP output. A true RMS wattmeter would show only 3.5 watts as once again the duty cycle factor is effectively 0.5.

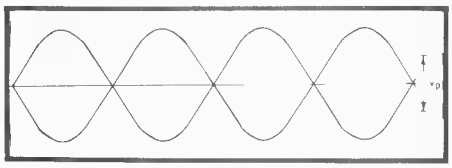

FIG. 5: Envelope of two-tone SSB signal.
PEP = $Vp^2/2R$) V^2R = $2I^2R$
where V 0.7071 Vp
and I average rms current.

If we now switch to voice we may see an envelope similar to that in Fig. 6. If Vp is as before then the PEP output is still 7 watts although the duty cycle may be only 30 per cent.

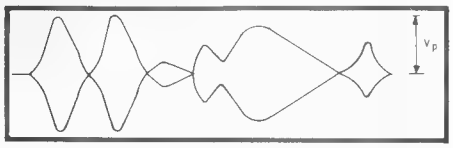

FIG. 6: Envelope of voice (SSB) signal.
PEP $Vp^2/(2\ R)$ = V^2/R
where V 0.7071 Vp.

SOURCES OF CONFUSION
There are many sources of confusion, for example here are three.

With some power supplies the voltage may remain steady under voice conditions but sag under key-down conditions. This is because of poor power supply regulation caused sometimes by insufficient filter capacitance. Fig. 7 illustrates the effect on a CW signal. If the peak voltage sags by 20 per cent then the PEP output sags by

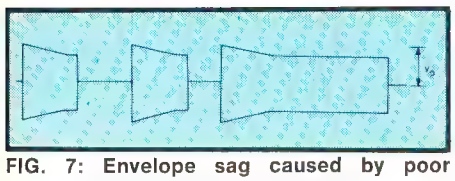

FIG. 7: Envelope sag caused by poor power supply regulation.

44 per cent! Some operators measure their CW output and multiply by a factor of up to 2 to estimate their PEP output. Modern equipment in good order is just not that bad.

Another source of confusion is the Regulations Handbook. It recommends the use of a two-tone signal adjusted for maximum undistorted RF output into a dummy load. The RF line current is then measured on an RF ammeter. (Just where, oh where, can you buy an accurate RF ammeter with 1A FSD, good to 30 MHz, for the novice?) Because of the duty cycle the power computed from I^2R is doubled to obtain PEP out. Some amateurs use the factor of two in conjunction with the DC input (measured while saying "ARRRH!" loudly into the microphone) to obtain PEP. The DC power is either doubled (to boost the ego) or halved (to pretend that the output is less than 400 watts) and if the desired answers are not obtained a further factor of 0.7 may be applied (while muttering about efficiency and peak-to-RMS conversion) to get the desired numbers.

A third source of confusion derives from AM transmissions. As hardly anyone uses AM I will not discuss the matter in any detail except to say that it may provide unwarranted justification for applying a factor of 4 to get an acceptable answer from a disagreeable set of measurements.

MEASURING PEP

This is a topic deserving a full column in itself, so I will save that for the future.

In brief, however, I prefer the oscilloscope as a measuring and monitoring instrument. Unfortunately the price of an oscilloscope with frequency response flat to within 5 per cent to even 30 MHz makes it uneconomic. I do possess an RF ammeter with 3A FSD. It was obtained many years ago from a disposal store and I have calibrated it on DC.

Several of our advertisers offer commercial PEP meters of good quality at reasonable prices. I would be pleased to publish details of any simple, effective home-brew PEP meters developed by readers.

There is another economic and cunning alternative. Harold Hepburn VK3 AFQ has designed a novel PEP meter using an LED display. It is available commercially for under $50 (I believe) and is advertised in this magazine. I have insufficient space this month to discuss its operation, but suffice to say that the DOC will accept the instrument as an alternative method of measuring PEP.

73 de VK3AFW. ■

Conversion Details for some AWA Carphones

Ray VK2BVO in "Smoke Signals", Jan. 1981, Central Coast ARC Newsletter

The conversion data presented here is to enable anyone with an AWA carphone to convert it from its commercial frequency range to the appropriate amateur band (6m or 2m). The crystal formula for 2m is (fMHz—2/14. At the time of writing, I couldn't locate the formula for 6m conversions. *(Perhaps a reader could supply this information for subsequent publication. —Ed.)*

High Band MR10B to 146 MHz

Tx Increase 1C14 to 82 pF, 1C12 to 47 pF, 1C21 to 15 pF.
Add 4.7 pF across secondary of 1T2 (pins 2 and 3).
Add 2.2 pF across primary and secondary of 1T3.
Close up 1L4 and 1T6A as required.

Rx Increase C15 and C16 to 33 pF, C31 to 22 pF.
Rewind primary and secondary of T9 with 6 turns.

High Band MR10C and MR20A to 146 MHz

Tx T8 increase C92 to 22 pF, C89 to 33 pF.
L9 add 2.2 pF across winding.
Close up L11, L12 and L16 as required.

Rx L1 L1 add 1.8 pF, L5 add 1.8 pF. Increase C54 to 15 pF, C6 and C7 to 39 pF, C58 to 22 pF.

High Band MR20B to 146 MHz

Tx Increase C117 to 39 pF, C118 to 22 pF.
L9 add 2.2 pF. Close up L11.

Rx L1, L3 and L6 add 1.8 pF. Increase C66 to 47 pF.
Add 4.7 pF across primary TR2 and secondary TR1.

High Band MR3 to 146 MHz

See October 1965 of "Amateur Radio" page 2 and 14 (photocopies available from most Division libraries, also public libraries in capital cities—*Ed).*

High Band Cyclephone to 146 MHz

Tx TR8 add 6.8 pF across both windings.
L9 add 1.8 pF, L11 rewind with 4 turns 16 SWG.
Remove C94, C115 and relay RL2.

Rx L4 add 1.8 pF.

Low Band MR10B to 52 MHz

Tx 1T4 add 15 pF across both windings.
Rewind 1T5A, 1T5B with 8 turns 16 SWG, 1T6A, 1T6B with 5 turns 16 SWG.

Rx L1 rewind with 18 turns 24B&S tap 3 turns from cold end.
T1 rewind wit h18 turns 24B&S.
T9 add 7 pF (resonate at 40 MHz).

Low Band MR10C and MR20A to 52 MHz

Tx T11 add 15 pF across both windings.
Rewind L11 and L12 with 8 turns 16 SWG 5/16 dia. x 3/4 long.
Rewind L13 with 6 turns 16 SWG 9/16 dia. x 7/8 long.
C125 increase to 100 pF.

Rx L1 add 4.7 pF, L2 and L3 add 3.3 pF, L4 and L5 add 10 pF.

Low Band MR20B to 52 MHz

Tx L8 and L9 add 15 pF, L11 rewind 6 turns, L12 rewind 18 turns, L15 rewind 10 turns.

Rx L1 and L2 add 4.7 pF, L3 add 3 3 pF, L5 and L6 add 10 pF.
C6 increase to 39 pF. N.B. This value is critical and may vary on some units to achieve neutralization.

NOTE: If narrow band filter type 5Q57975 is being removed and replaced with wide band filter type 3Q57975 the 2.2 pF across the input and output of the filter should be removed.

All coils should be wound on the same diameter and spacing as originals unless otherwise specified. ■

WICEN

QUEENSLAND WICEN

Considerable organisation has taken place within the past 12 months to make Queensland WICEN into an efficient State-wide group.

The State has been divided into five regions, each with a Regional Co-ordinator. Within each region are appointed WICEN officers and to date some 30 towns or cities have their own WICEN officer. These officers are charged with the responsibility of promoting an awareness of WICEN within their own club and area. They are also involved in forming local emergency nets and offering their services to the statutory authorities such as the State Emergency Service and Natural Disaster Organisation.

A weekly net of these WICEN officers and Co-ordinators is held to disseminate information and to answer queries.

The network operated successfully during the recent cyclone "CLIF", again during the Brighton storm near Brisbane and numerous smaller search and rescue operations.

As an exercise, communications were provided as a safety measure with the Brisbane to Galdstone Yacht Race. A continuous link with the yacht "Rustlac", on which our operator Frank VK4CFF was installed, was maintained throughout the race.

Forthcoming exercises are the Lutchwyche Car Rally in the Nambour area and a combined SES exercise in the MacPhehson Range involving a search and rescue operation.

Any Queensland operators requiring information on WICEN should contact the State WICEN Co-ordinator, Box 638, Brisbane, Queensland 4001.

Ken Ayers VK4KD,
Qld. WICEN Co-ordinator. ■

TRY THIS

WITH THE TECHNICAL EDITORS

From Bob Tait VK3YSH we have four items.

1. ANTENNA HINT

Fig. 1 shows the method I used to lock the adjustable section of my skeleton slot. The tubing was split in four places and then crushed to form a collet which locks on the rod with the aid of a nut of suitable size.

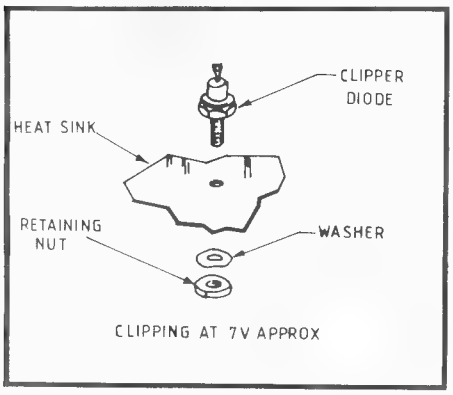

FIG. 1

2. LOW-COST DIODES

The other items which I feel will be of interest to amateurs is the Lucas 4DS5 rectifier which is a 3 phase device with a static rating of about 20 with a PIV of 100 watts or more. These packs are thrown out by auto-electricians if a single diode fails, however they are quite good for any single phase power supply. See Fig. 2.

I have included drawings and circuits to indicate how these can be used. The part numbers of suitable packs are 83166, 83185, 83192, 83062 and 83295. The difference between assemblies is the termination only. So I suggest you get friendly with the local auto-electrician and raid his rubbish tin.

3. SUPER ZENER

How about a 100W 14V zener, suitable for protection of that 6A power supply, details for Lucas part number 49345 as used to regulate motor cycle alternator output by loading at the battery is as follows:—

ZENER DIODE AND HEAT SINK

A stud-mounted Zener diode part number 49345, will be required. The diode must be mounted on a heat sink to prevent its working temperatures from rising above the designed operating range. The heat sink must be made of copper or aluminium sheet approximately 0.125 ni. (3 mm) thick, have a minimum area of 36 square inches, and be as square as space limitations permit. In practice, it is found that an area of 6 in. (152 mm) x 6 in. (152 mm) (as shown in Fig. 4) can most readily be accommodated. The diode must be mounted as near to the centre of the heat sink as possible. Care must be taken to see that the metal of the heat sink is clean, free from enamel and flat around the diode fixing hole to ensure maximum heat conduction from the diode.

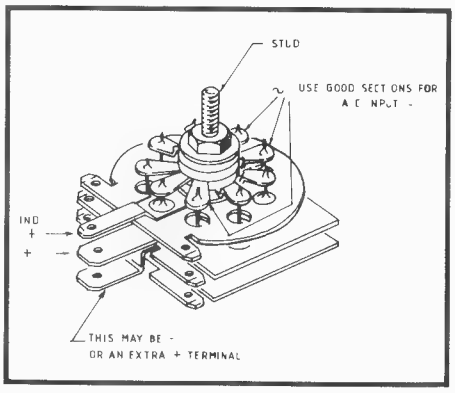

FIG. 2

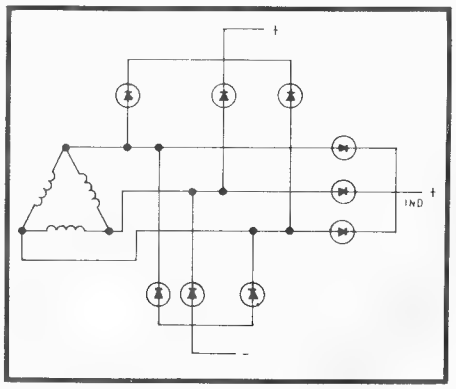

FIG. 3

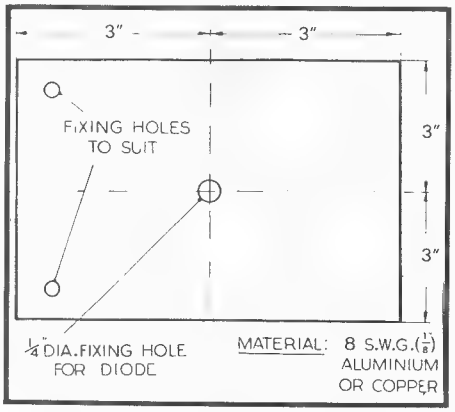

FIG. 4: Suitable heat sink dimensions.

4. SUPER CLIPPER
CLIPPER DIODE

Here are details of a Clipper diode which may be of interest.

A common fault experienced with machines equipped with direct lighting is the blowing of bulbs. This may be due to faulty dipper switches, causing momentary voltage surges, bad connections or intermittent earths. Whichever is the cause, the Clipper diode effectively protects bulbs against excessive voltage, but of course will not prevent failure caused by vibration, filament fractures or faulty bulb manufacture. The Clipper diode is available under Part No. 83137.

Installation

The diode is wired into the circuit so that when the lights are switched on, the generator also supplies the diode. This can be achieved by connecting either into the tail-lamp feed or the wire supplying the dipper switch. If no dipper switch is used the connection could be made directly to the headlamp bulb feed.

Either an aluminium or copper plate not less than 16 gauge in thickness and measuring 3 in. x 4 in. (76 x 102 mm) is required. Mount the diode on the plate by drilling a 0.1875 in. (4.77 mm) hole approximately in the centre of the plate, ensuring that all burrs are removed from round the edges of the hole so that the base of the diode bears flat on the plate.

Mount the plate on the machine in a convenient position so that air circulates around the diode and plate when the motor cycle is in motion. Do not position the unit too close to the ground or wheels since salt-contaminated mud and water may corrode the diode body. If the heat sink cannot be properly earthed, connect an earth lead between the heat sink and machine frame. The earth lead must not be soldered to the diode or connected between the diode base and heat sink.

Bob Tait VK3YSH ■

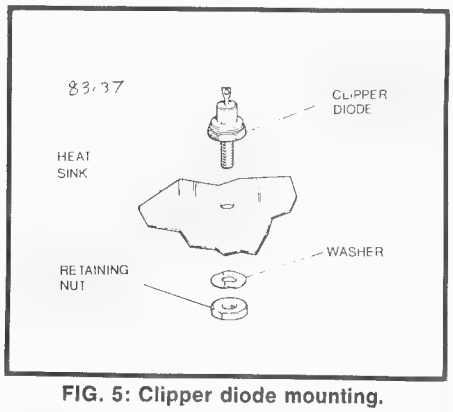

FIG. 5: Clipper diode mounting.

QSP

MOBILE TRANSMISSIONS

In Victoria Regulation 153(1) of the Motor Car Regulations 1966 (Statutory Rules No. 44/1966) states, inter alia, "that the driver of a motor car shall not while the motor car is in motion use any telephone, microphone or any other similar instrument or apparatus in such motor car". The only exemptions are drivers of motor omnibuses touring on charter in the metropolitan area who may use a fixed or throat microphone. "Motor car" includes almost everything (including motor cycles) registered for use on the roads. "Microphone" obviously would include a boom mike on a single headset. So far as is known there is nothing to prevent a passenger (other than the driver) from transmitting/receiving whilst the car is in motion. It is surmised that similar regulations apply in other States. ■

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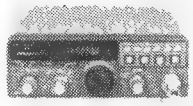

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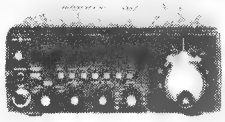

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All other Kenwood Transceivers will be sold at $10. on cost until further notice. Including the new TR 2 m FM Hand Held, TR9500, TR8400 and the TS530 S and don't forget that the TR 7850 replaces the TR7800.

If you want this stuff please call

VK/ZL/Oceania DX Contest 1980 — Overseas Results

PHONE SECTION

OCEANIA

W7LPF/DU2	1098
DU1EFZ	291
P29CH	12960
5W1BZ	18200
YJ8SS	57447

N. AMERICA

VE3EVK	705
VE1AVX	210
VE7DXU	75
VE7BS	16
WA4QMQ	3312
N4UH	468
W5OB	2440
N6AA	8
K5MM/7	5994
N7DF	2926
A19J8	10608
K8MWM	30636
AI9J	10608
W9RKP	check
AC0N	2860
W0CDC	1020
KD0B	check

S. AMERICA

LU8CW	119

ASIA

JA1ELY	20253
JA1IDY	15156
JK1OPL	13072
JF1JLW	6096
JE1CCD	4004
JR1JUR	3100
JA1AOD	2925
JA1AAT	1692
JA1DCO	1221
JL1QNG	920
JA1JGP	657
JA1IT	610
JE1PJR	468
JG1EZF	460
JA1FO	342
JA1BUN	342
JA1GYQ	336
JM1CPA	232
JA1EDQ	152
JA1RDP	84
JH1CQV	36
JA1ZSK	8
JM1LGL	4
JA2AYH	11872
JR2QUZ	5925
JE2IEQ	3146
JA2YEF	2832
JR2RAV	2112
JH2IJC	1488
JA2DI	1417
JA2JZA	1394
JA2ATE	1350
JA2CES	729
JA2XLV	639
JH2XTV	344
JA3HTT	10230
JF3ITR	3870
JA3BBG	1020
JR3CVJ	890
JA3UV	279
JR3WXA	270
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JR3SQZ	56
JA4YFH	13685
JA4VZX	5635
JA4DEI	3059
JA4KWU	1536
JA4AQR	590
JR4ISK	368
JH4XAE	224
JA4IDT	4
JA5PUL	9636
JA5CAX	7890
JA5AUC	5746
JA5CPO	5394
JH5GDW	4950
JH6DOG	10050
JA6BIF	9990
JA6ABG	7224
JA6CNL	4704
JA6CM	2286
JA6AKV	1764
JA6EFT	1220
JA6PL	315
JA7YAA	34221
JA7YAL	9870
JA7DLE	6336
JA7KM	1600
JA7BAL	1368
JA7JGD	1040
JA7FFY	840
JH7JGG	517
JR7HNF	350
JA7FMZ	84
JH7WKQ	27
JH8NYM	26226
JA8SW	1520
JA8CJY	check
JA9IGF	1408
JA9NLE	1309
JA9XBW	576
JA9BKW	168
JA0GCI	6150
JA0FMB	3100
JA0COL	3080
JA0JHA	2076
JA0AD	972
JA0BQB	230
JA0GZ	18
9M2KG	1564

EUROPE

DL8PC	18620
DJ9MT	5778
DJ3HJ	3648
DL8QS	2622
DL1SV	1680
DK1AF	1000
DL8XA	154
DF8MB	120
EA2QU	1815
EA3NA	544
EA2IA	360
EA2CR	30
EA3ARX	8
EA7ATE	8
F8WE	105
F6DRP	40
G3RRS	20008
G3OZF	17548
G3VPW	9296
G3UVZ	1748
G5MY	160
HA4XX	4344
HA4XH	3565
HA5NX	301
HA6KVD	40
HA0IG	24
HA3KNA	414
HA2KRZ	56
HB9AAA	9184
HB9IK	2247
HB9DX	440
I6NOA	1080
I4CSP	994
IS0QDV	156
IS0KNG	54
LA9PT	510
LA4M	112
LA5YV	12
LA4HH	check
LA4DM	check
LA5QK	check
LA8CJ	check
LZ2RF	2468
LZ2KKZ	608
LZ2KTS	1440

(Cont. next page)

VK PHONE

Call	160	80	40	20	15	10	Total
VK1FT	—	—	440	7072	17236	106502	133251
VK1LF	—	—	—	1110	—	—	1110
VK2NBA	—	—	—	—	—	315780	315780
VK2APK	—	—	—	111605	83284	30378	225267
VK2VAB	—	550	—	—	26964	146286	173800
VK2BAN	—	—	—	68992	—	—	68992
VK2BAM	—	600	—	4680	1092	20100	26472
VK2BQS	—	280	—	6120	4270	9486	20156
VK2ABC	—	—	—	13741	—	—	13741
VK2DEW	—	—	—	—	—	9108	9108
VK2WA	—	—	—	3408	8	168	3584
VK2VHP	—	1140	—	—	1380	1020	3540
VK3BQA	—	—	—	37696	61200	38640	137536
VK3ABH	—	—	45	77328	36314	1827	115514
VK3VHA	—	—	—	—	21730	31440	53170
VK3XB	7920	—	—	—	—	—	7920
VK3DAK	—	—	—	—	—	5265	5265
VK3SM	—	—	—	5244	—	—	5244
VK3NIH	—	—	—	—	2522	240	2792
VK3AMD	20	—	—	180	84	672	956
VK3VUP	—	—	—	—	3	748	751
VK4LT	—	—	—	11264	83212	492336	586812
VK4NHL	—	60	—	—	60514	517275	577849
VK4LX	720	240	1050	15392	137816	121212	276420
VK4NLL	—	—	—	—	53972	163296	217268
VK4NFU	—	80	—	—	55800	56322	112202
VK4SF	—	—	—	—	—	43470	43470
VK4NGU	—	—	—	—	—	19272	19272
VK4VBD	—	450	—	—	6076	8178	14704
VK4VHZ	—	—	—	—	10670	75	10745
VK4OX	—	—	—	740	—	—	740
VK4PJ	200	—	—	169	2	48	419
VK5MS	—	—	—	472384	105840	87246	665470
VK5NVW	—	—	—	—	33396	14352	47748
VK5NSD	—	—	—	—	17884	7200	25084
VK5RX	—	—	—	—	—	5320	5320
VK5RK	—	—	—	378	—	—	378
VK5OU	—	—	—	25	342	—	267
VK5NSN	—	—	—	—	152	72	224
VK6AJW	—	—	—	4648	15840	124425	144913
VK6NEN	—	—	—	—	—	107199	107199
VK6FS	—	—	450	78715	7462	13287	99914
VK6NID	—	1330	—	—	476	65286	67092
VK6NAT	—	—	—	—	45240	—	45240
VK6JS	—	—	—	1015	3854	16065	20934
VK5ZX*	—	—	—	3975	28060	30132	62167
VK7MC	280	320	—	—	—	—	600
VK8BE	—	—	—	567	9288	9288	19143
VK9NC Norfolk Is.	—	—	—	—	—	—	1560
VK9XW Christmas Is.	—	—	—	—	—	—	192228
VK2NDK/LH Lord Howe Is.	—	—	—	—	—	—	487088

VK CW

Call	160	80	40	20	15	10	Total
VK1FT	—	—	1666	5856	8000	8733	24255
VK2APK	—	—	—	63954	112230	32391	208575
VK2BQQ	—	—	12390	43216	70460	36108	162174
VK2AQF	—	1540	4725	15974	21868	36828	80935
VK3MR	—	—	—	—	169560	—	169560
VK3AEW	—	400	3625	16224	47124	20727	88100
VK3AZW	—	26520	—	—	15892	—	42412
VK3RJ	—	80	1955	—	70	24000	26105

* denotes QRP

(Cont. next page)

VK CW (continued)

Call	160	80	40	20	15	10	Total
VK3XB	360	14280	—	—	3430	—	18170
VK3PL	2240	1200	—	7676	798	4524	16438
VK3AMD	—	—	—	9840	40	2775	12655
VK3JI	—	90	1350	1376	6528	756	10100
VK3CM	4400	—	—	—	—	—	4400
VK3KS	240	1430	—	—	—	—	1670
VK3VEU*	—	10	—	—	1288	27	1325
VK3SV	100	80	—	—	—	—	**180**
VK3BLO	—	—	—	—	72	—	72
VK4XA	400	2210	70875	44092	81640	140352	339569
VK4LX	1080	1260	20580	25773	125756	59280	233729
VK4UR	—	—	—	40950	—	—	40950
VK4SF*	—	—	—	1890	3196	7659	12745
VK5VD*	—	—	—	195	2950	5856	9001
VK5RX	—	—	—	—	—	1026	1026
VK5KL	880	—	—	—	—	—	**880**
VK6AJ	—	—	—	—	106950	—	106950
VK6FS	—	60	8415	12600	13144	36216	70480
VK6RZ	—	—	36600	—	—	—	36600
VK7MC	1680	17630	—	—	—	—	19040
VK7RY	480	—	—	9882	1002	—	11364
VK4ZZ	80	—	—	6715	1584	612	8991
VK8BE	—	—	—	36	220	714	970
VK9NC Norfolk Is.	—	—	—	—	—	—	760
VK2NDK/LH Lord Howe Is.	—	—	—	—	—	—	6272

* denotes QRP

SWL

L30042	—	—	—	—	—	—	13790

ZL PHONE

ZL1BQD	—	26660	23310	—	112144	435744	597888
ZL1AKY	—	—	—	—	77520	449323	526752
ZL1AXB	—	—	—	523151	—	—	523151
ZL1AFK	—	—	—	—	—	235161	235161
ZL1ANH	—	—	24095	160312	49640	—	234047
ZL1MQ	1080	—	—	3008	12444	20762	37294
ZL1AFU	—	—	—	500	24472	3774	28746
ZL1AMM	—	—	—	—	—	22491	22491
ZL1NK	—	180	—	—	—	—	180
ZL2ACP	—	—	—	—	—	709866	709866
ZL2AH	—	—	—	18612	59857	139956	218425
ZL2BGJ	—	50600	—	—	—	—	50600
ZL2BHJ	5500	9400	—	—	—	—	14900
ZL2AKT	—	—	—	3	2	11703	11714
ZL2ADP	—	—	—	720	1248	336	2304
ZL2AQK							check
ZL3ABC	—	10	—	22261	—	27	22298
ZL4PX	1680	8280	—	—	—	—	9960
ZL4IJ							check

ZL CW

ZL1BJH	—	1440	—	—	85346	21594	108380
ZL1AFW	—	—	1020	12852	26128	39474	79474
ZL1AU	—	—	—	35000	—	—	35000
ZL1HV	—	—	—	6565	24112	3045	33722
ZL1MQ	20	—	—	14790	242	2829	17881
ZL1AMM	—	—	—	—	—	15576	15576
ZL1BGT	—	1800	1120	520	2604	1656	7700
ZL1BQD	20	1100	4760	—	—	—	5880
ZL1NK	—	280	—	—	—	—	280
ZL2VS	—	2850	61215	—	74236	41811	180112
ZL2OM	—	—	—	—	149454	—	149454
ZL2AGY	—	118260	—	—	—	—	118260
ZL2BKK	160	39840	—	—	—	—	40000
ZL2AKT	—	—	—	525	14160	—	14685
ZL3AGI	—	—	—	26814	—	—	26814

EUROPE PH. (cont.)

OE3NPW	5902
OE5XBB	1206
OH1XX	5100
OH3WH	792
OH2BPE	460
OH6IU	238
OH3BX/2	96
OH3AA	60
OH2BMP	56
OH6DH	32
OR4XG	676
OX3ZM	check
OZ4PM	2880
OZ8BZ	1909
OZ5EV	1116
OK3CFA	5805
OK1TA	5157
OK3VSZ	3864
OK2ABU	1120
OK2BQL	850
OK2QX	756
OK1AGN	456
OK1JST	108
OK2BJR	80
OK1XC	50
OK2PDL	24
OK2BHM	18
OK1AZI	18
OK2PDE	14
OK2BNK	check
OK1ASQ	check
OK3KFO	2070
PI1ARS	407
PA0COR	270
PA0LVK	208
PA0CF	check
SM0AJU	8534
SM3DXC	2756
SM6CVT	4966
SM5HPB	1508
SM6LGW	780
SM5BDV	check
SM5ARL	check
SP5BT	741
SR7AWA	132
SP5ENA	27
SP3CMA	8
SP9AXA	8
SR9PDF	1470
Y37XJ	2475
Y57ZJ	1501
Y53YF	1140
Y43ZI	884
Y59UN	520
Y21PE	400
Y25HL	380
Y26LN	126
Y22WF	120
Y26DO	110
Y41ZH	84
Y39ZO	70
Y49UH	check
Y49UK	check
Y34RI	check
P44ZK	check
Y33TA	check
Y31PA	check
Y23QA	check
YO3QK	182
J03JW	138
JO6BJV	18
JU2CDS	9585
YU7ECD	4128
JU3DJK	1254
YU1NUF	996
YU10BA	666
YU7NZR	546
YU7AJD	132

No logs received from USSR

CW SECTION

OCEANIA

KP4KK/DU2	34920
W7LPF/DU2	2373
3D2FJ	20808
5W1BZ	17723

N. AMERICA

HP1AC	315
VE3MFT	885
XE2MX	826
W1EVT	3770
K1MEM	2553
WB1HIH	540
W1OPJ	32
K2SX	784
WB4RUA	1197
K5MA	5796
W5OB	1050
AA6EE	80
K5MM/7	10980
N7DF	400
K7WA	320
W7QK	168
W8UVZ	6105
AI9J	13110
K9VKY	144
W0KEA	8274

S. AMERICA

PY1OPL	8094

ASIA

JK1OPL	8094
JI1PCN	2392
JA1SJV	2070
JA1ODE	1740
JR1JUR	1558
JH1MTR	532
JH1BCY	340
JA1OP	280
JF1LKM	260
JL1QNG	90
JA1AAT	85
JK1LUY	8
JA2IU	7130
JA2DCN	4464
JA2YEF	4420
JA2BI	4228
JE2IEQ	660
JA2KPV	175
JR2HTT	60
JH2XTV	48
JR3WXA	6474
JH3WKE	5340
JH3LPT	1176
JH3AIU	748
JH3FHR	162
JA3UV	8
JH4UYB	4495
JA4BFL	966
J4RCCG	759
JH4IFF	550
JA4FMS	336
JA4AQR	10
JA5AUC	10035
JA5CP	6479
JA6BIF	5576
JA6GU	1872
JA7YAA	13024
JH7WKQ	420
JR7DXE	175
JA7FMZ	128
JH8GEU	1376
JA8SW	690
JA9CWJ	7437
JA8ERG	351
JH9DCJ	4676
JH0BBA	9635
JA0GCI	8140
JA0BQB	728
JA0GZ	65
9M2KG	1691

EUROPE

DJ4SO	1444
DK1PF	156
EA21A	1840
EA7ALG	686
EA2CR	96
EA3AQS	84
EA4BV	40
G5MY	728
G3KSH	540
G3VW	360
G8QZ	8
HB9IK	2871
HA4XX	1104
HA7SQ	154
HA7SU	50
HA5NG	48
HA7PQ/2	18
HA0IG	check
HA1KSA	688

(Cont. next page)

EUROPE CW (cont.)

HA1KZZ	616	Y38ZB	2
HA5KHG	328	Y23BF	check
I5YDI	385	Y23CM	check
LA2KD	48	Y31SB	check
LA1VL	32	Y31XF/P	check
LA7XB	check	Y33VA	check
LA4DM	check	Y39QA	check
LA4XX	check	Y39ZG	check
LZ1XL	234	Y39ZL	check
LZ2DR	24	Y47XN	check
LZ2KKZ	15	Y48ZF	check
LZ1KSN	2040	YO3KSC	2
OE3NPW	2369	YU7NGO	840
OH2CZ	1302	YU1AST	210
OH7KJ	533	YU2RJZ	36
OH2BPE	410	YU7SF	10
OH1PY	242	YU7ORQ	8
OH7NW	132	ZB2EO	784
OH9TD	44		
OZ4PM	1680		
OZ1LO	1037	**SWL SECTION**	
OZ8AE	324	JA1-18277	6633
OZ2RH	146	JA4-4665/1	5768
OZ1EE	check	JA1-8132	3080
OK1PGN	1700	JA1-30223	2976
OK1AMI	660	JA1-19113	2070
OK2QX	572	JA1-22456	1680
OK2BMH	351	JA2-9482	416
OK3KYR	242	JA4-30124	11418
OK2BCI	234	JA4-33469	5403
OK3CAU	52	JA6-9330	12584
OK3FON	36	JA7-8552	1376
OK2ABU	36	JA8-3769	4784
OK1CIJ	21	BRS 25429	3125
OK1AZI	6	BRS 1066	1168
OK3KEU	3	DL-P40-1802206	140
OK1MAC	2	LZ1-O-64	1738
OK1MAC	2	OH6-145	2289
OK1ASQ	check	OK1-21672	530
OK3CEG	100	OK3-27106	396
PA0TA	40	OK3-26694	300
PA0CF	check	OK1-11861	288
SM6CVT	1596	OK1-21610	154
SM6EUZ	310	OK3-26694	120
SM7CZC	8	OK1-19973	90
SM6AYM	check	OE1-104079	294
SM5APS	check	SP-0046-K1	814
SM6KZW	check	SP-0023-SK	744
Y22JD	3100	SP-3003-LK	660
Y22JA	516	Y2-517/G	8208
Y22UB	344	Y2-10280/E	5876
Y21PE	320	Y2-7215/1	3200
Y55PL	224	YT-6405/N	1176
Y24EA	208	Y2-EA-17509/C1116	
Y21CF	120	Y2-5876/8	8
Y31XA	52	SP9-3354-KA	396
Y45SA	14	Y2-8887/G	check
Y64YG	8	Y2-9540/A	check

This 1981 contest was organised by NZART in New Zealand.

The 1981 contest will be organised by WIA in Australia. The dates are:—

Phone: 3/4 October.

CW: 10/11 October.

24 hours from 1000Z on each weekend.

Good DX and 73 from ZL . . . Jock ZL2GX, NZART Contest Manager.

FROM THE CONTEST MANAGER:

The scoring system used was an extension of that introduced in 1978 and the revised points allocation for various bands seems to have met with acceptance and approval. With changing conditions in the future, some variations might be necessary — but for the present, current points allocation could remain stable.

Use of prefixes as multipliers for VKs and ZLs has also proved interesting and workable. Contrary to some previously expressed opinion, the need to **look** for new prefix multipliers IS an important factor.

NZART cannot agree with the proposal to accept contestants' scores in place of a log — but the need to re-write a whole log is not accepted either. The use of carbon copies is quite acceptable and is suggested as a means of overcoming the log problem. There is no need for writer's cramp except during the contest.

While the suggestion of "contest fre" areas on each band might sound "good", its practical application is doubtful.

The QRP section should be deleted as the interest displayed is minimal. Scores made by Novice stations are so high (in some cases) that it is doubtful whether a separate section is necessary for this group of operators. The question of a restricted time section (8 hours or so) is open to debate. It was not many years ago that each section of this contest was spread over two WHOLE weekends . . . THAT sure WAS a marathon . . . my memories of the 1948 contest (and others) is still very fresh.—ZL2GX.

VK AND ZL INDIVIDUAL BAND SCORES

Open — Phone		**Open — CW**	
VK5MS	665470	VK4XA	339569
VK4LT	586812	VK4LX	233729
VK4NHL	577849	VK2APK	208575
ZL2ACP	709866	ZL2VS	180112
ZL1BQD	597888	ZL2OM	149454
ZL1AKY	526752	ZL2AGY	118260
160 m — Phone		**160 m — CW**	
VK3XB	7920	VK3CM	4400
VK4LX	720	VK3PL	2240
VK7MC	280	VK7MC	1680
ZL2BHJ	5500	ZL2BKK	160
ZL4PX	1680	ZL1BQD	20
ZL1MQ	1080	ZL1MQ	20
80 m — Phone		**80 m — CW**	
VK6NID	1330	VK7MC	17630
VK2VHP	1140	VK3AZW	26520
VK2BAM	600	VK3XB	14280
ZL2BGJ	50600	ZL2AGY	118260
ZL1BQD	26660	ZL2BKK	39840
ZL2BHJ	9400	ZL2VS	2850
40 m — Phone		**40 m — CW**	
VK4LX	1050	VK4XA	70875
VK6FS	450	VK6RZ	36600
VK1FT	440	VK4LX	20580
ZL1ANH	24095	ZL2VS	61215
ZL1BQD	23310	ZL1BQD	4760
		ZL1BGT	1120
20 m — Phone		**20 m — CW**	
VK5MS	472384	VK2APK	63954
VK2APK	111605	VK4XA	44092
VK6FS	78715	VK2BQQ	43216
ZL1AXB	523151	ZL1AU	35000
ZL1AKY	449232	ZL3AGI	26814
ZL1ANH	160312	ZL1MQ	14790
15 m — Phone		**15 m — CW**	
VK4LX	137816	VK3MR	169560
VK5MS	105840	VK4LX	125756
VK2APK	83284	VK2APK	112230
ZL1BQD	112144	ZL20M	149454
ZL1AKL	77520	ZL1BJH	85346
ZL2AH	59857	ZL2VS	74236
10 m — Phone		**10 m — CW**	
VK4NHL	517275	VK4XA	140352
VK4LT	492336	VK4LX	59280
VK2NBA	315780	VK2AQF	36828
ZL2ACP	709866	ZL2VS	41811
ZL1BQD	435744	ZL1AFW	39474
ZL1AFK	235161	ZL1BJH	21594
QRP — Phone		**QRP — CW**	
VK6ZX	62167	VK4SF	12745
		VK5VD	9001
		VK3VEU	1325

CONTESTANTS' COMMENTS

Enjoyed contest, conditions good, plenty of action, but hate the paper work! (what about the Contest Manager!!) . . . Good to see the new scoring system (actually almost same as in 1978 but with more points for lower frequencies) . . . A bit disappointed in bands, conditions uneven, 80 metres noise unbearable . . . Sunday visitors cost points . . . Worked several new ones on 80 and 160 . . . Seemed to be less VKs and ZLs Dupe problem . . . One W0 called me at least six times . . . Thoroughly enjoyed even if one station on 160 took 35 minutes to establish call sign and serial number . . . Full marks for change in scoring system . . . Glad to see multi-band operation favoured by the rule change . . . Keep up the good work . . . My first VK/ZL . . . I have not worked out score as I would have made a mess of it! . . . Couldn't talk for two days after . . . Writer's cramp copying logs . . . Logs for each band should be for a four hour consecutive period only . . . Have a portion of each band out-bounds for contest purposes . . . Sorry about the mess but hope you can read the logs OK (yes I did!) . . . Any log is better than no log, I suppose (and the answer to that is YES) . . . Beams came down and three family emergencies . . . Propagation — what a shocker! . . . Had usual trouble with splatter from 10/20kc wide Russians.

FROM OVERSEAS LOGS

"I love VK/ZL contest" . . . "What is Oceania?" . . . "From Eu condx were terrible" . . . "Disappointed so little Oceania DX". In answer to THAT comment, this is a sample of what was available — KH6, 3D2, 5W1, VK2/LH, P2, VK9 Christmas, VK9 Norfolk, DU, YJ8, YC1, YC0, FO8, KX6, VK1, VK7, VK8, 9M2. Not too bad . . . surely!

(NOTE: Overseas results will be in "Amateur Radio" and "Break-In" and will not be posted to VK and ZL contestants.) ■

MAGAZINE REVIEW

Roy Hartkopf VK3AOH

Since this column is not merely a list of all the titles in every magazine listed, it may be helpful to occasionally give a short explanation as to how the titles mentioned are selected.

The first criterion is relevance to Australian interests and conditions. The second is originality. If for instance it is just another regulated power supply, it is not likely to rate a mention. Also articles with attractive titles and very little content are avoided. It is most disappointing to go to special trouble to get a magazine and then find the title is the best part of the article. Finally, some articles are missed simply because the magazine has not been available.

As usual, the articles are divided into one or more of the following categories: (C) Constructional; (G) General; (P) Practical without detailed constructional information; (T) Theoretical; (N) of particular interest to the Novice.

SHORT WAVE MAGAZINE Jan. 1981
Long Wire Antennas (G, N).

RADIO COMMUNICATIONS Feb. 1981
VFOs Investigated (G, N); Two Element Three Band Beam (C); LED Indicating Wavemeter (C).

CQ-TV Nov. 1980
ATV Up-Converter (P); Video Switch (P).

73 MAGAZINE Jan. 1981
Logic Probe — Unfortunately the use of "True" and "False" in the description of how the logic probe works makes the explanation unreadable even to the extent of confusing the writer himself. **Carefully** substitute H (high) and L (low) and the sequence will become clearer. The confusion is compounded by using "1" and "0" in the timing diagram — (P); Heat Sinks (T).

Feb. 1981
Caution: Solid State Finals (T).

QST Feb. 1981
Vertical Antenna Directivity (T).

HAM RADIO Feb. 1981
1296 Solid State Transmitter (C); Moonbounce (G); 80 Metre Receiver (N). ■

ALARA

AUSTRALIAN LADIES' AMATEUR RADIO ASSOCIATION

The next meeting of ALARA is to be held at Mavis's VK33KS, when a farewell is to be tendered to Daurel VK3ANL, the Secretary of ALARA now for two years. Our thanks go to Daurel for her work and also best wishes as she and OM Art return to USA. Jessie VK3VAN has agreed to take on the secretarial matters for this year. Mavis VK3BIR is Treasurer, so please send subscriptions and badge orders direct to Mavis. Newsletter Editor is Geraldine VK2NQI.

ALARA Awards Manager Mavis VK3KS has distributed 24 ALARA awards to date. Please send your applications direct to Mavis, QTHR, for quicker return.

ALARA membership is now 125 (VK) and 35 (DX).

ALARA NET
Mondays at 1030 GMT on or about 3.570 MHz. A roster is now operating.

OPEN HOUSE NET
Tuesday and Thurdays, 1000-1200 GMT on 14.322 MHz, and look for Gill VK6YL.

VK/VE/ZL NET
Friday at 2300 GMT on 28450, and look for Bobbie VE7CBK.

ALARA CONTEST
The proposed date for the contest is 14th November, 1981. Watch this column for details closed to the date.

Best wishes to all and please advise me of any new call signs, awards, etc.

73/33. Margaret VK3DML. ■

AROUND THE TRADE

Dick Smith announces the release of his "Dick Smith Electronics Enthusiasts Catalogue 81-82".

Produced in-house, this 11th edition of the catalogue is by far the biggest, most informative yet. It contains over 130 pages (some in full colour), packed with products and information for the electronic enthusiast.

A new feature is a 30 page Data information section including Broadcasting and TV Stations, Circuit Laws, DIN and Hi-Fi connections, Music Frequencies, Reactance/Frequency Chart, Transistor Data and lots more. There is also a chance for a lucky customer to win a free mail order whatever the value, just by being the 200,000th customer.

The "Dick Smith Enthusiasts Catalogue" can be obtained from any of Dick Smiths stores for 75c. ■

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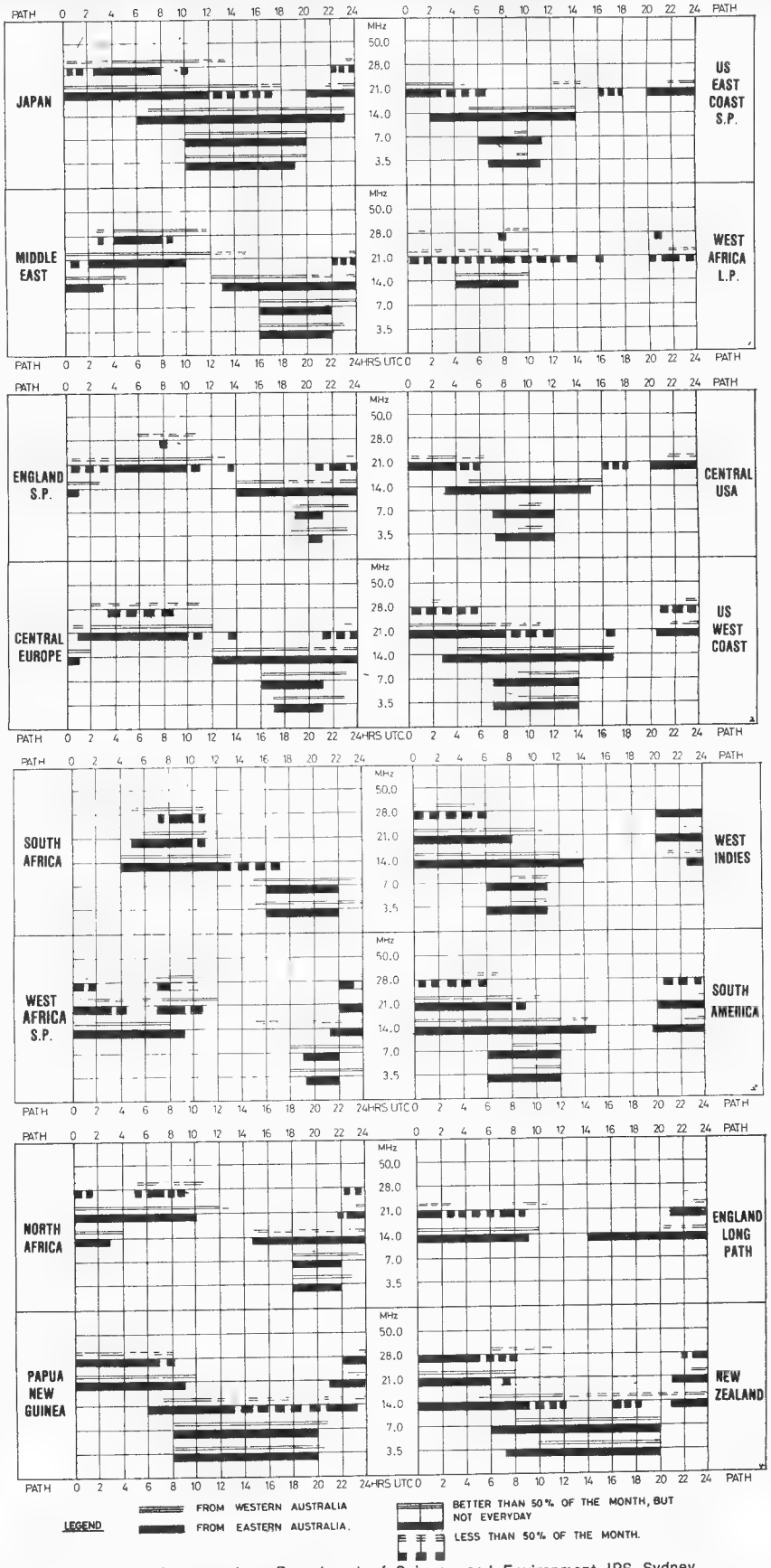
IONOSPHERIC PREDICTIONS

Len Poynter VK3BYE



Predictions courtesy Department of Science and Environment IPS Sydney.
All times universal UTC (GMT).

LETTERS TO THE EDITOR

Any opinion expressed under this heading is the individual opinion of the writer and does not necessarily coincide with that of the publisher.

Box 50, Sandgate, Qld. 4017
Phone (07) 269 5175
5/3/81

The Editor,
Dear Sir,

I am an active Intruder Watcher, but I do not have the equipment to copy many of the illegal transmissions. Many intruders use fast CW, RTTY, FAX and other modes.

This is a plea to amateurs and others who are able to get hard copy on these modes. Please help! I can supply cassette tapes of intruders, so it is not absolutely necessary for a helper to listen on the amateur bands.

Especially if someone can hard copy very fast Morse or RTTY at different speeds and shifts, I desperately need to hear from them.

For those who don't wish to write or phone, I can be contacted on the VK4KAL Qld. Intruder Watch Net each Saturday night at 8.15 p.m. on 3540 kHz.

73s. Bob McKernan VK4LG. ■

The Editor,
Dear Sir,

INTRUDER UMS

One of the strongest and most persistent intruders on the 15m band is the USSR intruder UMS. This station operates intermittently (20-40 per cent of daylight hours and early evening) on 21032.4 kHz. Modes used are F1-RTTY, F6-RTTY, A1-CW fast and slow speed.

This intruder sometimes moves 200 Hz to avoid amateur signals. 99.9 per cent of Australian amateurs do not report intruders, yet this is the only way that we stand any chance at all of eliminating this illegal and harmful interference from our once exclusive amateur bands. Participation in activities of the Intruder Watch Service is the path of success. YOUR non-participation is NOW slowly depriving us all of the use of the amateur bands. I plead to my fellow amateurs for assistance. The following information is requested by the IWS: Date, Time, Frequency, Call Sign, Mode, RST, Bearing, Details of Traffic. The Federal IW net may be found Thursday 2030 EST on 3540 kHz. All are welcome to join.

UMS changed frequency to 21112 kHz on 14th April He may change back to 21032 kHz.

VK4LG.

Comment by VK3LC:—

I thoroughly endorse the above

For those members interested we can now translate most foreign languages to English.

If members hearing a foreign broadcast would put a read-out on tape we can identify the language and make appropriate reports. Go to it! ■

37 Second Avenue,
Sefton Park, SA 5083
April 8, 1981

The Editor,
Dear Sir,

I'd like to congratulate Chris Long on his excellent tribute to the late Gill Miles VK2KI featured in the April edition of Amateur Radio. The only time I have ever had a chance to see Low Definition Television (LDTV) was the night that Chris brought his gear to my QTH as reported in his article

The two pictures printed with the said article are at once both better and worse than those seen live with the naked eye! BETTER in that the Picture Repetition Rate of 8 per second causes frightful flicker — bad enough to give one a migrain! (Actually LDTV offers substantially better random noise cancellation than SSTV **because** of the rapid PRR!) WORSE in that LDTV gives a **moving** picture quite capable of showing the rapidly changing moods of the live human face.

It occurred to me as I watched that modern digital video storage techniques could do for LDTV what it already has done for SSTV — that is, produce a picture which can be viewed in comfort on any standard TV set. But unlike SSTV the LDTV pictures **moves!** In this way we amateurs might once again make a significant contribution to the development of a useful telecommunications tool!

In fact an American amateur, Henry Ruh KB9FO, in January of this year announced continuing development of "Frequency Discrete Fast Scan Television, a method of transmitting live pictures worldwide on any frequency band available without a satellite" (A5 Television Magazine).

A 20 min. Umatic Videocassette is now available from me as WIA Videotape Co-ordinator in which Chris Long demonstrates his LDTV gear. Included are off-the-screen shots of the first live TV transmitted on HF between Melbourne and Adelaide as described in Chris' article.

73. John F. Ingham. ■

23/2/81

The Editor,
Dear Sir,

The anonymous piece at the bottom of page 26 of your November issue still gets hearty laughs.

It was written by Bob Manning K1YSD some ten years ago and the story appeared in 73.

Alas, Bob is now a silent key and we'll sure miss him. His articles were by far the funniest ever written for ham magazines.

73s. Wayne Green W2NSD/1,
Editor, 73 Magazine.

Thanks, Wayne, for the info. — (VK3UV, Ed.) ■

83 Brewer Road, Bentleigh, Vic. 3204
11/3/81

The Editor,
Dear Sir,

Listening around the bands reveals that there appears to be a low return of QSL cards from the USSR, other than cards from short wave listeners in that country.

The following extract from the VK3 Outwards QSL Bureau Records is provided, without prejudice, for the information of you and your readers. During 1980 8700 QSL cards in 54 packets of about 160 each were forwarded to the USSR for amateurs and SWLs in that country, the home of the "Woodpecker"

As an aside, let's all hope the "Woodpecker" strikes a particularly hard piece of wood such as jarrah or red gum and comes to grief

Yours faithfully,

R. R. Prowse. ■

11 Mimosa Court, Murray 4814
7th April, 1981

The Editor,
Dear Sir,

Drew Diamond (March 1981 AR) suggests that Radio Amateurs should not have to pay tax on components. Out of fairness this would also mean that components used in all other hobbies contributing skills in the national interest should be tax free. Such a suggestion of course is not only narrow and one eyed but impractical.

On the wider scene, a government can only spend what it receives in income so if we want governments off our backs then we should also take our hands out of the treasury pockets

Drew Diamond's letter touches another nerve in the radio amateur conscience. Just how many amateurs really do build anything significant any more? Those who do should be claiming a 15 per cent sales taxation rate (not 27.5 per cent) applying to all components for transmission equipment.

Finally the cost of construction projects is sometimes cheaper these days. How many remember buying OC44 transistors in the 1950s for £2/17/6? In real terms today the OC44 would cost about $9 66, but in fact better transistors are now available for only 6.3 cents each!

Yours faithfully,

Peter Lindsay VK4QD. ■

Teletramel Pty. Ltd.
38 Faithful Street
PO Box 506, Wangaratta, Vic. 3677
8th April, 1981

The Editor,
Dear Sir,

We have read technical notes (not in a recent AR) describing a method of reducing the power of the FT101Z to Novice requirements.

That method seems quite complicated and involves removing one of the 6146B tubes with a probable consequence of having to re-neutralise the PA stage.

We have used the following method with success. It may be noted that removal of covers on PA stage is unnecessary.

Remove the wire from the 320V tap on the power transformer and reconnect it to the 120V tap on the same winding (this is referred to as CT in the schematic). This reduces the HT to approximately half. Next locate the screen grid supply to the 6146Bs, which goes between the 210V point on PB 1968 (Rect. B unit) and the feed through capacitor (C44) on the side of the PA compartment. Remove wire from feed through and using a small tag strip for support insert a 22k 1W resistor between the wire and the C44, thus reducing the screen voltage. Finally, adjust the idle current to 50 mA by means of VRI on PB 1968 as described in the Instruction Manual.

You may prefer to insert this as a technical note rather than a letter to the editor.

Yours sincerely,

S. B. Roberts VK3BSR ■

PO Box 109, Mt. Druitt, NSW 2770
April 2nd, 1981

The Editor,
Dear Sir,

Through the medium of your column I would like to bring to the attention of your readers the following information. Mr. Kenji Takahashi JH8ADQ, well known to many in Australia, is interested in corresponding with blind people, specially radio operators. Ken is currently learning to read and write in braille and is reasonably proficient already, and has an excellent command of the English language. He is keen to write about radio and Japan or other subjects. His age is about 18 years and has recently completed senior high school and is studying for university entrance. He plans to study languages and hopes to become an interpreter eventually.

If anyone has a blind friend or knows of a blind operator would they please relay this information to them. Ken has asked that initially letters be short, because of his commitments. The address is as follows:

Mr. Kenji Takahashi,
2-6-24 Aoba, Chitose 066, Japan,

or care of myself at the above address (with postage please).

Yours sincerely,

Colin Stevenson VK2VVA ■

25 Gosse Avenue,
Glenelg North, SA 5045
2/4/81

The Editor,
Dear Sir,

I would like to express my grateful thanks to the Australian Post-Tel Institute Amateur Radio Club, South Australia, in assisting me along the road to recovery following my heart attack on 19th March, 1981.

The day following my attack the Club purchased a Kenwood TR2400, base stand and extension microphone/speaker, which were loaned to me immediately I came out of intensive care. Club funds were insufficient at the time, but my brother (also a member of the Club) temporarily financed the purchase.

Many enjoyable QSOs were made during the week in general care, and also at home using the Kenwood when convalescing and relaxing around the house instead of being tied to the shack.

Many thanks to Darryl VK5IN (President), Ken (committee member) and other members of the Club.

Yours faithfully,

H. J. Townsend VK5HT. ■

SILENT KEYS

It is with deep regret that we record the passing of —

Mr. M. R. ROTHWELL	VK2AER
Mr. A. G. SMITH	VK3AN
Mr. J. R. WOOD	VK6ZN
Mr. A. CHISHOLM	VK3BLC
Mr. J. KNIGHT	VK1JK
Mr. L. DODGE	VK7LD
Mr. F. A. HAAS	VK5FH

OBITUARIES

ALAN GLEN SMITH VK3AN

Alan Glen Smith VK3AN passed away at the age of 60 very suddenly on the 29th March, 1981. Alan will be sadly missed by all; he made many friends in ham radio and his journey through life.

Alan was a retired member of the SEC, with which he was apprenticed at the age of fourteen. He worked his way up to become a Supervisor. He was held in high esteem by his workmates and all who knew him. Unfortunately Alan only enjoyed eighteen months of his retirement.

Alan became a Ham in February 1947 and was a member of the WIA from January 1945, a member of the Old Timers' Club, a constant supporter and visitor to as many conventions as was possible to attend, always entering into the spirit of these.

His everyday on-the-air companions would like me to say how much they have valued his friendship; my XYL and myself would like to add our deep appreciation and thanks for his companionship, his memory will ever be with us all.

The many who knew Alan would like me to tender their condolences to his wife, Nancy, and daughter, Glenys, on their sad loss.

A gentleman at rest.

Len Sole VK3NZX. ■

FRED HAAS VK5FH

It is with deep regret we record the sudden passing of Fred Haas VK5FH on 15/4/81.

Fred had a call sign for over 50 years, and started with a UO prefix (in the days before Austria had the OE prefix), then became OE1FH prior to coming to Australia before the last war, when he joined the Wireless Institute as a VK2 for a short time before settling in VK5.

His enthusiasm was boundless, and he delighted in meeting visiting overseas amateurs and showing them around South Australia, of which he was terribly proud.

He made many friends over his 800 ft. long wire, and regaled all with tales of how his cows trampled through the delta loop he was building, and of watching the bushfires catch his masts alight.

He will be affectionately remembered for his cheerfulness, encouragement and happy nature.

We extend our condolences to Erika and family.

Amateur radio will be the poorer for his passing.

Vale Fred.

Brian Austin VK5CA. ■

HAMADS

- Eight lines free to all WIA members. $9 per 3 cm for non-members.
- Copy in typescript please or in block letters to P.O. Box 150, Toorak, Vic. 3142.
- Repeats may be charged at full rates.
- Closing date: 1st day of the month preceding publication. Cancellations received after about 12th of the month cannot be processed.
- QTHR means address is correct as set out in the WIA 1979 Call Book.

FOR SALE

Kyokuto 2m FM-2025A Mk. II, 2 months old, $300; also 8 el. 2m yagi, $35. Phone Don VK2DXH (049) 49 8952 or QTHR VK2VPN.

Icom IC22A, exc. cond., with inst. manual and cadle, xtals for rpts. 2 to 8, simplex 40, 49, 50, orig., no mods., $200 or offer. VK3YLN. Ph. (03) 842 2260.

Icom IC225A 2m Txcvr., $350; universe 24 ch. 10m Txcvr., $80; McCulloch 1.5 KVA 240V generator, all just reconditioned, $280. Les VK1NBK, QTHR. Ph. (062) 88 9226.

Cobra 138 X LR AM SSB and channel walker, $250; ex-army C42, complete unit, goes from 23 MHz to 38 MHz, 24V unit, $120; Yaesu SSB Txcvr., FT101E, A1 cond., with 27 MHz, $450; power supply 14.7V 18A to 25V 20A, $140. International 244 Dez, PO Box 288, Sunshine, Vic. 3020. Ph. (03) 363 5009.

Yaesu FT101Z with desk mic., $600. David Boehm VK1UD, QTHR. Ph. (062) 54 8982 AH.

Kenwood TS-820S with VFO 820, 500 Hz CW filter and DC-DC converter, the lot $900, may negotiate. Tim VK3BCN, Ascot Vale. Ph. (03) 370 6092.

Kyokuto 2m Mobile, $285; Ken 2m HH 40, 50, R2, R8 rubber duck nicads and charger, $175; standard 2m HH, 40, R2, R8, Ch. 50, hand mic., carry case, $200; VK3 carphone, 2m 25W 40, R8, $195. Graeme Thomson VK7ZGT. Ph. (003) 44 4773.

Ham Shack Clear-out: Heathkit SB102 Txcvr., 80-10 with mic., processor, ACPS, DCPS and spares, $465; SSTV monitor, converter, camera, tripod, tapedeck, cables and tapes, compete set-up, $655; PT110 Txcvr., 26.9-29.1 MHz continuous tuning (VFO), 5 digit readout, SSB and AM, 35W PEP 12V, with mic. and acc., $275; linear amp. 20-11m, 300W PEP 12V solid state(match to PT1110 radio, very small, $155; antenna triband beam (10-15-20), 8 el. on 40 ft. boom, $475;; rotator, Ham III, with 100 ft. cable, $240; tower, 30 ft., $48; UR67, $1.35 m; R68, $0.35 m; also used cable cheaper; coax relay, 12V, 900 MHz, $13; dummy load, 1 kW PEP oil, $25; phone patch, $25; heatsinks, $2; 6146A RCA (new), $8; 6883B (12V 6146B), new, $5; 2N5591, $8; 2N5590, $4; all equip. and parts in exc. cond. Jim VK2CK, QTHR. Ph. (02) 78 2545.

RTTY Gear: Complete working system, but requires 240V/115V AC t/former, comprises 2 model 15 teletype printers with covers, 1 series governed motor on 45.45 baud. the other synchronous at 50 baud, ETI/mod/demod carefully built in attractive comm. box, HB 150V loop supply with 4 inputs, instruction manual, all working in exc. cond., $180 the lot — HF gear: Icom IC701 Txcvr. and PSU with RM3 external remote controller, manuals, mic., exc. cond., no mods., $1050; Alda 103 100W output, 80, 40, 20m Txcvr., fully solid state, suit as mobile or spare Txcvr., as new, 12 pole xtal filter included, mic., manual, $475 — VHF gear: Kenwood TS700A all mode 2m Txcvr., 144-148 continuous tuning in 4 x 1 MHz steps, 1 kHz analog readout, 100 kHz calib., mic., manual, 4 yrs. old, exc. cond., $570 — Receiver: Kenwood R1000, as new, no mods., /450. All above equipment can be seen operating, genuine reasons for sale, may consider genuine offers. B. Bathols VK3UV, QTHR. Ph. (03) 90 6424 AH only.

FT101E Txcvr, with FV101 ext. VFO, mic., DC-DC lead, exc. cond., $700 the lot, ONO. Tom Allen VK7AL, QTHR. Ph. (002) 43 9192.

Yaesu FT-221R with YC-221 digital display and YD148 desk mic. and hand-held mic., $500, ONO; Ocom IC-22A repeaters 2-8 and 40, 50 simplex, v.g. cond., $185, ONO; 52-54 MHz linear amp., homebrew, 6-40 in output, built-in power supply, $60, ONO. VK3BIB, QTHR.. Ph. (055) 62 4630.

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Icom IC-502 52-53 MHz portable 6m SSB Txcvr., complete with mobile mounting bracket, nicads and charger, $220, ONO; 35W SS linear to suit also available. Paul VK2YKG. Ph. (02) 452 5998 AH.

Icom IC22S with mobile mount, mic., handbook, fitted with VOX, EA scanner, LED channel readout, PWC, $240, ONO; Icom IC502 50 MHz, SSB/CW, with 30W outboard SS linear PWC, $210, ONO. Noel VK4KTX. Ph. (074) 22 2533 BH (free call).

TS520S Txcvr. and DG5 digital readout, immaculate, not used very much, with manuals and in orig. container, big saving at $650 firm. Mike VK2VRB, QTHR. Ph. (043) 32 1760.

Shack Clearance: Icom IC701 with matching PS and mic., orig. cartons, $900; Heathkit linear SB200 v.g.c., $475; Icom IC22, rpt. 2, 4, 5, 6, 7, 8 and ch. 40, $160; Yaesu frequency counter YC350D, $150; Hygain TH Mark 3 beam, new, $215. Ian Ampt VK3CH. Ph. (03) 25 7886.

Macrotronics Interface, to suit TRS/80-M-800 and M-80, full instructions, software, etc., $275. VK4NKC, QTHR.

Yaesu FL2100B linear amplifier, exc. cond., with handbook, $380; Cushcraft 2m 20el. cross yagi beam, 12 dB gain, $55. Steve VK3JY, QTHR. Ph. (03) 836 3841.

Collins 30L1 Linear Amplifier, overhauled recently by former Collins Co. engineer, 4 x 572Bs replaced, immaculate cond., used less than 100 hours, $750. Roth Jones VK3BG. Ph. (03) 870 3333 Bus.

Galaxy V Mk. III, exc. cond., ext. VFO, CW filter, P/S, VOX op., 2 spare finals, new, spare valves, USB, LSB, good and clean, $320; Geloso Rx, SSB, filter, CW, AM, type R209, mint cond., orig. case with handbook, clean, works OK, no mods., beautiful museum piece, $120; Geloso Tnx, TR222, matches with above Tnx., clean, no mods., mint cond., AM only, 6146 out, 807s mods., museum piece, $120; BC348, good and clean, no mods., but with ext. PS, $65. VK4LN, QTHR. Ph. (071) 82 2675.

Yaesu FTDX560 with matching speaker and desk mic., spare valves, $400, ONO. VK4AWR, QTHR.

FT101, mint cond., finals never used, $450; FTV650 FETised front end, 6883 final, $160; IC22, little used, rept. ch. 3, 5, 6, 8, ch. 40 simplex, $175. VK2ZHR, QTHR. Ph. (049) 45 9373.

FT200/FP200 Txcvr., with 27 MHz and some spare valves, RF/IF mods (6EH7S), $350, ONO. VK5RG, PO Box 35, Daw Park 5041, SA. Ph. (08) 276 4547.

IC245, $310; AR240 hand-held, with charger, case, $300; TRAM XL5 modified 10m, 2 antennae, $130; IC212 (215) nicads, ch. 1-8, 40, 50, $210; Siemens teleprinter (model 100), papertape reader/punch, no keyboard, $270. John VK2WW, QTHR. Ph. (02) 546 1927.

Wide Tyres, Goodyear 10 x 16.5 with heavy duty wheels, to suit Toyota Landcruiser, set of five, $250; also three Toyota wheels with Dunlop Road Trak major tyres fitted, $90. VK3NNX, 60 Elm Grove, North Kew. Ph. (03) 859 5913.

BWD 539C Oscilloscope, 2 ch., 20 MHz, exc. cond., $390; FRG7 Yaesu HF Rx, brand new, will guarantee, $275; Hioki digital multi-meter, auto ranging, auto zero, auto polarity, large LED display, with case, probes, many others. VK3ZJB. Ph. (03) 397 6470.

Yaesu FRG7 Rx, exc. cond., complete with readout and manual, $250. Ph. (02) 232 6261 9 a.m.-1 p.m. weekday .

Yaesu FT227R 2m Txcvr., all accessories and instruction manual, incl. circuit diagram, little used, exc. cond., also 2m 5 el. yagi, $275. Dave VK3YOH, QTHR. Ph. (03) 401 2005.

Icom IC-502, with access., all in carton, 52-53 MHz, 3W, $200, ONO. VK3ZCO, QTHR. Ph. (03) 45 2506.

FLDX400/FRDX400, good cond., 80-10m, has three auxiliary bands for future expansion, complete with mic., $400, ONO. Contact Carlo Leone (03) 347 4695 AH, or VK3ATM, QTHR.

Bearcat 220FB VHF-UHF Scanner, fully synthesised, 20 memories, v.g.c., $350, or will trade for 2m synthesised hand-held; will pick up in Sydney area. Ph. (047) 58 6765 after 6 p.m.

Hidaka 5 band trapped vertical VS-41/80KR, with trapped g/plane radials, used, good cond., $50; 20 ft. x 2 in. x 3/16 in. thick walled alum. boom, as new, $40. Ph. (03) 398 4192.

Microwave Modules, 2m to 432 MHz transverter, $180, ONO; Kenwood TR3200 FM VHF Txcvr., complete with carry case, battery charger-nicad, three simplex, three rpt., plus 2 to 10W amplifier, $180, ONO. K. C. Dalton. Ph. (07) 377 3785 Bus., (07) 201 3006 AH.

Complete Station, perfect order, no mods., Ten-Tec 21 Century, solid state CW Txcvr., Ten-Tec crystal calibrator, model 276, Ten-Tec ant. tuner, model 277, auto keyer, Ten-Tec, model 645 "ultramatic", $400, plus freight, no offers. Harry VK2EP, QTHR. Ph. (066) 54 1536.

Kenwood VFO230 digital external VFO for TS830S, DS130 or TS120, 5 memories, exc. cond., $240; Kyokuto 2m FM Txcvr., 15W output, 8 ch. scanner, good cond., $210, VK5ZK, QTHR. Ph. (08) 297 4950.

Drake T4XC Tx, 160-10m, with AC4 power supply and Shure 444 mic., exc. cond., spare tubes and manual, reluctant sale. Peter VK3APN. Ph. (03) 317 9001 Bus., (03) 211 8979 AH.

Txcvrs, 6m IC551, 2m IC251A, brand new; antenna, 6m S. quad, 10m S. quad, 15m S. quad; TH6DXX Hygain tri-band beam, all in cartons. Ph. 240 1231 Bus., 509 8637 AH.

WANTED

301I Linear, any cond., even if not operative. VK4LN. Ph. (071) 82 2675.

Old factory built amateur HF valve linears, any cond., as long as transformer OK, negotiate price. Noel VK4KTX. Ph. (074) 22 2533 BH (free call).

Eddystone 770R/770U VHF/UHF Rx, mk. 1 or mk. 2, or similar. D. Thorne VK7MR, 308 Park Street, New Town, Tas. 7008.

Standard Nineteen Inch Rack with open frame, six ft. high or more, holes drilled at standard spacing, either tapped or to suit captive nuts, cond. is unimportant. Gordon VK2ZAB. Ph. (02) 456 3972 AH.

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Everything for the Amateur
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FT620B 6m Txcvr., must be mint cond. Vince VK2VC, QTHR. Ph. (02) 713 6655.

Kenwood TS7625 with mic., good cond., model 15SR teletype, good cond. VK4NTW, PO 108 Chermside, Qld. 4032.

Swap my Yaesu FTDX401, 460W input to final, v.g.c., for Yaesu FT7. VK2NSE, QTHR. Ph. (067) 463 2745.

PTFE Sheets, about .0100 in. (.26 mm) thick, 12 in. x 12 in. square, or bigger size, for VHF use. D. McConnell, VK3YNB, QTHR.

Nixie Tube/s, cold cathode type numeral tube/s for old-fashioned Weston 1240 digital multimeter, new or used, can anyone help? VK4ZTA, QTHR. Ph. (07) 38 5155 AH.

1946 ARRL Handbook and Circuit for Leader LSG-11 sig. gen. Tim VK3BCN, Ascot Vale. Ph. (03) 370 6092 AH.

Valve Rectifiers, type 80 or 83/83V, preferably burnt out ones, but will take good ones too, the 4-pin skirt is required to mount coil stock. Ken VK6ZA, QTHR. Supply phone number for quick reply.

Crystals, repeater 3, 146150, 146750 MHz, to suit Ken 2m hand-held. VK1WJ, 1 Bruford Place, Devonport 7310. Ph. (004) 24 2844.

Information required for HF Rx (ex Neptune aircraft) type R648-AAR41, circuit, gears, handbook and spares required. Bill Babb VK3AQB. Ph. (03) 337 4902.

813s, one pair plus sockets, or similar high power tubes. John VK2BKW, QTHR. Ph. (02) 636 4137.

476 MH Equipment: Tx, Rx, Txcvr, converter, prefer solid state, but valves considered, details, incl. state of equipment, price, etc., to Eric Jamieson, VK5LP, QTHR. Ph. (08) 389 1204 around 2230Z or 0930Z.

TRADE HAMADS

CB Disposal Sale: 18 ch. SSB/AM, $119 with any trade; $109 with 2 trade-ins; $99 with 3. Post rig and inc. chg. 23 AM $49, 18 AM $69, 3.5 to 12 MHz $45, DX160 $139, FRG7 $295, Eddystone, 2 models VHF, 19 to 165 MHz; UHF 146-500 MHz 240V Rx, $250; serviceable units, $120; MLA 2500 2 kW linear, $895; FT901D, $895; different rigs coming in each day, all tested like new before despatched to you. When in Sydney drop into Park Disposals, 32 Park Street, Sydney 2000, near Town Hall railway. Ph. (02) 264 7515. Rigs posted anywhere in Aust., NZ, PNG add $5. 27/28 MHz antennas, $850; walkie talkie.

Amidon Cores — Large range of ferromagnetic cores for all receiver and transmitter applications. Send large SASE for data/price list to: RJ & US Imports, Box 157, Mortdale, NSW 2223.

QSP

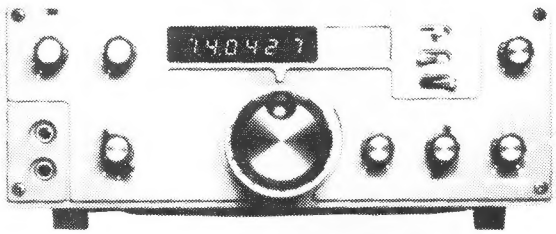
GEELONG REPEATER

Unfortunately the Geelong Repeater will be off the air for an extended period due to recent theft from the site of the receive filter and coax cable. Geelong police are investigating the incident along with other repeater site thefts over the past fortnight. The GARC Committee has recommended the construction of a brick enclosure for the receiver to improve security. Funds need to be raised to cover the replacement cost of the receive filter. ■

HELP WITH INTRUDER WATCHING

SCALAR

GET THE EDGE ON THE CROWD, UPGRADE WITH TEN-TEC



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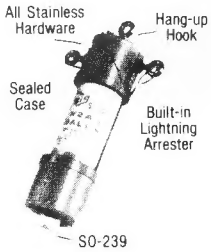

W2AU
1:1, or 4:1

Wire
Dipole Baluns
3-40 MHz
1 KW DC

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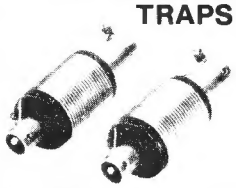

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Self supporting
light weight
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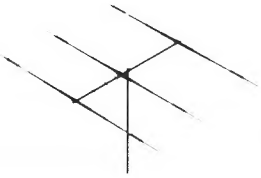

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no bandswitching
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W.A: Unit 5/319 Pearson St., Osborne Park, 6017 tel: (09) 446 9179

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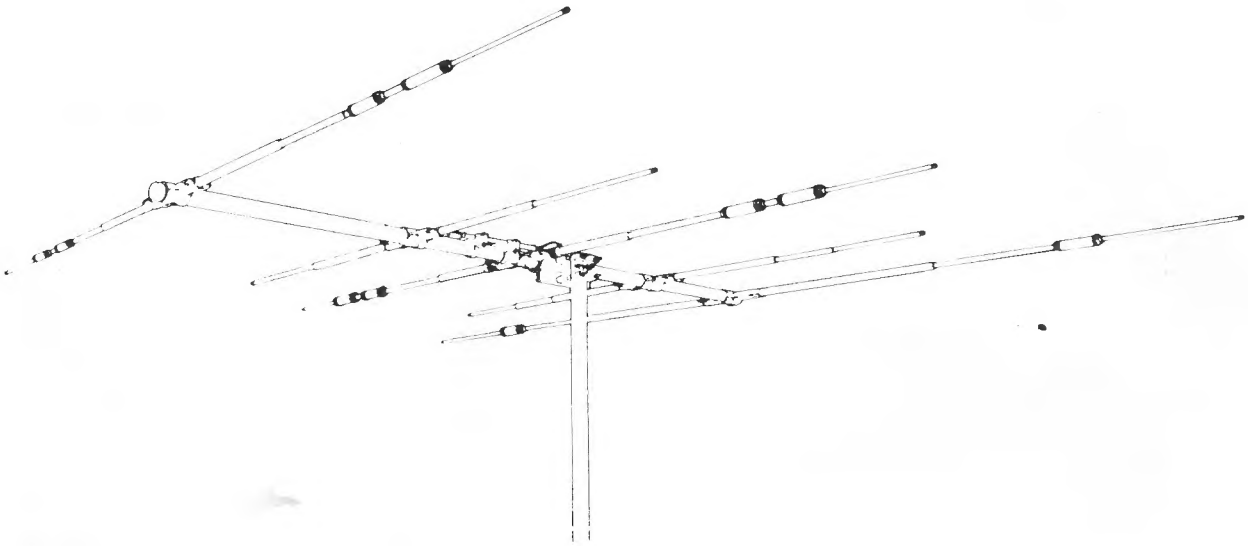
TH5DX
10-15-20 METERS



We are proud to introduce the newest member of our famous Thunderbird line of Tri-Band antennas. The TH5DX offers outstanding performance on 20, 15 and 10 meters. It features 5 elements on an 18 foot boom, with 3 active elements on 15 and 20 meters and 4 active elements on 10 meters. The TH5DX also features separate air-dielectric Hy-Q traps for each band. This allows the TH5DX to be set for the maximum F/B ratio and the minimum beam width possible for a Tri-Band antenna of this size. Also standard on this antenna are Hy-Gain's unique Beta-match, rugged Boom-to-mast bracket, taper-swaged elements and improved element compression clamps.

Boom length	18 feet
Longest Element	31 feet
Turning Radius	18 feet
Surface Area	6.4 sq. feet
Wind load	164 lbs
Weight	50 lbs

VSWR at resonance	less than 1.5:1
Power Input	Maximum Legal
Input Impedance	50 ohms
−3dB Beamwidth	66° average
Lightning Protection	DC ground
Forward Gain	8.5dB
Front-to-Back Ratio	25 dB

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MOUNT WAVERLY 3149
Tel: 277 5311

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